Improving Social Equity within Public Organizations:

Authority Differentials as Reference Points for Fostering Diversity and Inclusion within U.S. Federal Agencies

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Abstract

Fostering diversity and inclusion (D&I) is a major challenge confronting the contemporary American administrative state. The asymmetric distribution of authority within U.S. federal agencies is critical for understanding employee perceptions of agency D&I efforts. Leveraging data from approximately 2.51 million U.S. federal employees across 105 agencies between 2010-2019, the statistical evidence demonstrates that authority differentials, reflected by the relative gender and racial balance of supervisory and non-supervisory personnel within U.S. federal agencies, predict employees' evaluations of agency efforts at fostering D&I. Although these authority differentials have similar effects on employee D&I evaluations for both men and women, minority employees exhibit more sanguine assessments of agency D&I efforts than compared to non-minority colleagues predicated on such authority differentials. The statistical relationship between authority differentials and employees' agency D&I evaluations is most pronounced for women minority employees, as well as for those holding supervisory positions.

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Fostering diversity and inclusion (D&I) within the U.S. federal civilian workforce is important to ensure equitable administrative governance. Frederickson (1971) asserts that representative democracy often fails to address systematic discrimination against disadvantaged minorities, emphasizing the importance of enhancing their political power and economic well-being for social equity. Social equity, identified as a key pillar of public administration alongside efficiency and effectiveness (Frederickson, 1990; see also Riccucci, 2009), is defined as the fair and just treatment of the workforce in public organizations. This fair and just treatment of the workforce is grounded in the principle of "equalities of means opportunity," which ensures that all employees with the same qualifications have equal access to job opportunities and does not extend to "equalities of prospect opportunity," which aims to ensure equal likelihood of attaining favorable outcomes regardless of qualifications (Frederickson, 1990). This distinction underscores our focus on providing equitable opportunities rather than guaranteeing equal prospects of success. Organizations that effectively promote and manage D&I yield tangible organizational benefits in various dimensions, such as lower levels of discrimination or bullying (e.g., Andrews & Ashworth, 2015), higher levels of job satisfaction (e.g., Pitts, 2009), better responsiveness to the public, and accountability (e.g., Riccucci, Van Ryzin, & Lavena, 2014; Theobald & Haider-Markel, 2009; U.S. Office of Personnel Management [OPM] n.d.). Because of the shifting demographic and cultural landscape in recent decades (OPM, 2018; Rosenberg, 2008), addressing this challenge becomes an urgent matter if public organizations are to be effective at program service delivery for historically under-represented and marginalized populations.

In support of this aim, the Federal Equal Opportunity Recruitment Program (FEORP) within the U.S. Office of Personnel Management (OPM) advocates for creating a more diverse

and inclusive federal workforce (2018 FEORP Annual Report). This objective is central to the

OPM's implementation plan, *Guidance for Agency-Specific Diversity and Inclusion Strategic*

Plans, corresponding to *Executive Order 13583* (*Establishing a Coordinated Government-Wide*

Initiative to Promote Diversity and Inclusion in the Federal Workforce) issued by President

Barack Obama on August 18, 2011. A primary goal of this initiative was 'sustainability' – that is,

institutionalizing diversity and inclusion with U.S. federal agencies (OPM, 2011, pp.3-4).

Sustainability relies on those holding authority positions within agencies to make both

measurable and sustainable progress toward diversity and inclusion efforts, including through

training, performance evaluation, and programmatic activities (OPM, 2011, p.21). President

Joseph R. Biden issued Executive Order 14035 on June 25, 2021, seeking to augment these prior

efforts to improve D&I within the U.S. federal workforce.

This study analyzes how government agencies can facilitate D&I efforts, measured as the

perceived commitment towards fostering D&I held by federal government employees. Because

power is asymmetrically distributed within organizations between supervisory and non-

supervisory personnel, we maintain that authority differentials, defined as the relative balance of

supervisory positions to non-supervisory positions for historically disadvantaged groups (i.e.,

women or racial/ethnic minority personnel) relative to historically privileged groups (i.e., men or

non-minority personnel), are critical for predicting federal employees' D&I evaluations.[1] Data

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[1] In this study, women and racial/ethnic minorities are classified as the "historically

disadvantaged group," whereas men and racial/ethnic non-minorities are classified as the

"historically privileged group." These terms highlight the traditional social, economic, and

political advantages or disadvantages these groups have experienced (e.g., Jacobs, 1996; Lin,

from 2,507,103 U.S. federal employees comprising 105 agencies from 2010-2019 reveal that federal employees' view of authority differentials predicts their evaluations of the extent to which U.S. federal agencies foster D&I efforts. Analyzing data by respondent type reveals that men and women, regardless of supervisory position, exhibit similar statistical relationships about disadvantaged groups' authority differentials. Conversely, minority federal employees' perceptions of agency commitment to D&I are more strongly predicated on favorable authority differentials for minority employees compared to non-minority employee evaluations. Further, improving women personnel authority differentials yields both larger and more consistent beneficial statistical associations with D&I evaluations for men and women federal employees compared to minority and non-minority employee evaluations in the presence of improving minority personnel authority differentials. These differential findings comport with the fact that women enjoy both relatively higher overall and supervisory levels of representation within U.S. federal agencies compared to racial/ethnic minorities (OPM FEORP Report, 2018; Partnership for Public Service & Hamilton, 2018), while also being cognizant of the greater obstacles that minority employees confront within the federal workforce (Davidson, 2018; Partnership for Public Service, 2021; Riccucci, 2009). More broadly, these statistical findings have implications for understanding how the distribution of authority within public agencies is critical for not only ensuring trust, but also enhancing the *de facto* legitimacy of governmental institutions (e.g., Mansbridge, 1998; 2015).

2000; Schmitt & Branscombe, 2002). For brevity, we will use the abbreviated forms "disadvantaged group" and "privileged group."

FOSTERING DIVERSITY AND INCLUSION IN PUBLIC ORGANIZATIONS

Fostering diversity and inclusion (D&I) within the U.S. federal civilian workforce requires sufficient representation of historically marginalized populations serving in supervisory administrative positions. This is a critical issue since workplace discriminatory behaviors are often underreported (U.S. Equal Employment Opportunity Commission [EEOC], 2016), and such behaviors can undermine fostering an organizational environment conducive to D&I efforts (Goldman, Gutek, Stein, & Lewis, 2006; Schneider, 1991). Creating such an environment also has downstream consequences for promoting social equity in governing (e.g., Kelly & Newman, 2001; Naff, 1995; Riccucci & Van Ryzin, 2017). Representation in supervisory administrative positions is closely linked to opportunities for advancement, access to authority positions, and pay within the U.S. civilian federal government workforce (EEOC, 2020, p.11). Although women and minority employees within the U.S. federal government civilian workforce respectively constitute 43.4% and 37.7% of all employees, these employees occupy 33.8% and 21.2% of Senior Executive Service (SES) positions (OPM, 2018, p.2). As the U.S. federal government civilian workforce becomes increasingly diverse, fostering a diverse and inclusive workplace environment is crucial. Yet, these benefits are enhanced when agencies effectively manage diversity and promote inclusion (Choi & Rainey, 2010; OPM, 2011; 2018; Sabharwal, 2014). Improving the distribution of authority within public agencies favoring women and minority employees also facilitates greater *de facto* legitimacy associated with democratic governance in purely representative terms (Mansbridge, 1998, pp.650-652; 2015, p.265).

Characterizing Authority Differentials within Public Organizations: Power Distinctions

Between Supervisory and Non-Supervisory Personnel

The distribution of authority within organizations is crucial for understanding both the formal and informal aspects of organizations (e.g., Presthus, 1960, p.88). Due to the hierarchical nature of organizational structures, authority is distributed unevenly among supervisory and non-supervisory roles within organizations. Consequently, focusing on authority differentials between supervisory and non-supervisory personnel favoring disadvantaged group members may be critical for evaluating employees' assessment of issues relating to social equity within public agencies. *Authority differentials are simply the relative balance of supervisory positions to non-supervisory positions for disadvantaged group members (i.e., women or racial/ethnic minority personnel) vis-à-vis privileged group members (i.e., men or non-minority/Caucasian personnel).*

Authority differentials presuppose two key features that occur within a wide array of organizations. First, members in high-status positions (supervisors) exercise power over those members serving in low-status (non-supervisory) positions (e.g., Emerson, 1962; Netemeyer, Maxham, & Lichtenstein, 2010). For instance, the U.S. Code of Law defines a supervisor as "an individual employed by an agency having authority in the interest of the agency to hire, direct, assign, promote, reward, transfer, furlough, layoff, recall, suspend, discipline, or remove employees, to adjust their grievances, or to effectively recommend such action" (5 U.S.C. 7103 (a)(10)). As a result, authority differentials can shape biases relating to the legitimacy of decisions made within the organization if authority is only distributed to a certain group (Tajfel & Turner, 1986). Authority differentials premised on this distinction between supervisors and non-supervisors affect social equity within organizations. Authority differentials affect women and minority employees in various ways, including the nature of leader-member exchanges

(Jackson & Johnson, 2012) and influences on how supervisors treat their non-supervisory colleagues (Farmer & Aguinis, 2005). For example, a rising share of low-status disadvantaged group members affords high-status group members to wield power at the expense of low-status group members (Gwinn, Judd, & Park, 2013); with disadvantaged group members in non-supervisory positions being adversely affected in the workplace (Roscigno, Lopez, & Hodson, 2009). Relative underrepresentation of disadvantaged group members in supervisory positions may also harm disadvantaged group employees in supervisory positions. Prior research on tokenism theory finds that individuals from underrepresented groups in managerial roles often face heightened stress and social isolation since they struggle to connect with the dominant group within their organizations (e.g., King, Hebl, George, & Matusik, 2010; Lortie-Lussier & Rinfret, 2002; see also Kanter, 1977).

Because disadvantaged group members are generally underrepresented in higher, decision-making positions in public bureaucracies, most public administration studies focus on the descriptive representation of supervisors to investigate the level of equity within organizations and to emphasize the need to consider the ranks within organizations (e.g., Anestaki, Sabharwal, Connelly, & Cayer, 2019; Liang, Park, & Zhao, 2020; Riccucci, 2009; Smith & Monaghan, 2013). However, a focus restricted to supervisory descriptive representation measures fails to account for the relative power distribution for disadvantaged group members vis-à-vis privileged group members within public organizations. This study seeks to understand when authority differentials, rooted in status-position differences, influence employees' evaluations of the social equity climate within U.S. federal agencies.

Our core claim is a straightforward one. An organization's effectiveness at fostering a diverse and inclusive environment – especially from the perspective of disadvantaged group

members – necessitates improving authority differentials involving supervisory and non-supervisory personnel on behalf of disadvantaged group members. Applied to U.S. federal agencies, this means that the extent that women and minority personnel view their agency D&I efforts in a positive light is contingent upon the relative balance of authority each respective group holds within their agency. By extension, non-supervisory personnel are also part of the authority differential calculus since it captures the critical role of varying status-group positions within organizations. Although the *overall* minority composition of the civil service appears to mirror the U.S. population, minority employees are disproportionately under-represented in senior-level positions, and even more in career Senior Executive Service (SES) positions which represent the most impactful career executive positions within the U.S. federal bureaucracy (Lardy, 2021). It is thus critical to consider the extent that minority employees are over-represented in non-supervisory positions that lack authority. Measures of either overall (e.g., Lee, 2019) or supervisory proportions (e.g., Anestaki et al., 2019; Liang et al., 2020) of minority employees fail to properly account for the distribution of authority within public organizations since they cannot account for the relative extent that disadvantaged group members lack formal authority within organizations. Analysis of social equity within public organizations must consider the relative balance of authority premised on *both* high-status and low-status positions to offer accurate insight into this issue.

Based on the preceding discussion, the following baseline hypothesis is proposed relating to the importance of improved authority differentials for women and minority positions within federal agencies for contributing to a higher perceived agency commitment to D&I efforts.

H1: *Baseline* **Authority Differential Hypothesis:** *The disadvantaged group / privileged group authority differential is positively associated with employee evaluations that their organization effectively fosters D&I in the workplace environment.*

Social identity theory posits that individuals tend to define their place within an organizational or societal setting based on their group membership status (Tajfel & Turner, 1979). For instance, minority group members tend to be more sensitive to status and resource disparities between the groups than are majority groups (Dovidio, Gaertner, & Saguy, 2007). Because disadvantaged group members experience a history of exclusion and rejection, this produces a prominent concern regarding their own acceptance by privileged group members within organizations (Branscombe, Schmitt, & Harvey, 1999; Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). Conversely, majority group members (e.g., men, non-minorities/Caucasians) enjoy their dominant values, and thus rarely experience the identity threat (Dovidio et al., 2007). This logic generates the next hypothesis predicting that disadvantaged group organizational members will be more sensitive/elastic to authority differentials than privileged group counterparts.

H2: *Disadvantaged Group Premium* **Authority Differential Hypothesis**: *The disadvantaged group / privileged group authority differential is more positively associated with disadvantaged group employee evaluations vis-à-vis privileged group employee evaluations regarding their organization's efforts at fostering D&I in the workplace environment.*

Next, these authority differential hypotheses are analyzed at both the aggregate group level, as well as involving distinctions among alternative disadvantaged group versus privileged group D&I evaluations, and subsequently between supervisory and non-supervisory D&I evaluations.

DATA AND EMPIRICAL STRATEGY

Our empirical design leverages evaluations of agency D&I efforts from 2,507,103 U.S. federal employees spanning 105 agencies that comprise 88.61% of the U.S. federal civilian workforce covered by FEVS during a ten-year period. We pool observations across ten FEVS repeated cross-section survey waves (2010-2019) to increase statistical power and coverage, while also reducing idiosyncratic variation from a particular year's FEVS cross-section, or repeated observations from an identical set of individuals through time. Our design is well suited for analyzing heterogeneous evaluations of agency D&I efforts by federal employees broken down by gender and race/ethnicity distinctions since the subjects are responding to the same authority differential within their agency for a given year.

Dependent Variable

Fostering D&I within U.S. federal agencies is measured based on federal employees' *Evaluations of Agency D&I Commitment* as a latent factor score derived from Federal Employee Viewpoint Survey (FEVS) survey instruments for each year during the sample period (2010-2019). [2] This measure assesses organizations' dedication to fostering diversity and their implementation of policies and practices aimed at promoting diversity (Choi & Rainey, 2014). The use of employees' self-reported data in this study is necessary and crucial since their evaluations of agency D&I commitment can shape their attitudes and behaviors in the workplace. Perceptions often play a pivotal role in shaping individual behaviors, demonstrating their ability to exert influence distinct from objective realities and suggesting that reshaping individuals'

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[2] Descriptive statistics and data sources for all variables can be found in ***Appendix B.***

perceptions can be a useful strategy for inducing shifts in attitudes and behaviors (Clarkson, Hirt, Jia, & Alexander, 2010; Jepsen & Rousseau, 2022).

Because all federal agencies are formally regulated in a uniform manner based on EEOC laws and policies, employees' evaluations of agency D&I efforts can reflect informal aspects of organizations' commitment to this issue. We measure employees' latent evaluations of agency D&I efforts. The dependent variable of interest is a multiple-item latent measure that has been tested and validated in earlier public management research (e.g., Choi & Rainey, 2010; 2014; Pitts, 2009): (1) "*Supervisors/team leaders in my work unit are committed to a workforce representative of all segments of society.*"; (2) "*Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring).*"; and (3) "*Managers/ supervisors/ team leaders work well with employees of different backgrounds.*" Based upon survey responses from employees within a given agency, this latent measure depicts employees' perceived evaluations of agency D&I efforts. These indicators are estimated in a confirmatory factor analysis model for each annual FEVS survey wave to generate weighted factor score estimates of this latent concept.[3] Higher factor score estimate values indicate more favorable evaluations of agency D&I efforts.

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[3] The creation of latent factor scores using confirmatory factor analysis (CFA) assumes a specific factor structure that accurately reflects the underlying data. We are confident of our estimated factor structure and resulting latent factor score estimates since past studies have effectively used CFA to establish this latent measure (e.g., Choi & Rainey, 2010; 2014; Pitts, 2009) and our CFA analysis yields good statistical properties relating to convergent validity and model fit. Please see **Appendix C: Latent Measures of Agency D&I Efforts & Organizational Justice** for details.

Primary Covariates

Authority differentials are operationally defined as the relative balance of supervisory positions to non-supervisory positions for disadvantaged group members (i.e., women or racial and ethnic minority agency personnel) relative to privileged group members (i.e., men or non-minority/Caucasian agency personnel). This measure is computed as follows for each U.S. federal agency-year[4]:

$$\text{Authority Differential}_{jt}^{\frac{\text{DISADVANTAGED}}{\text{PRIVILEGED}}} = \frac{\#\text{Disadvantaged}_{jt}^{\text{SUPERVISORY STATUS}} / \#\text{Privileged}_{jt}^{\text{SUPERVISORY STATUS}}}{\#\text{Disadvantaged}_{jt}^{\text{NON-SUPERVISORY STATUS}} / \#\text{Privileged}_{jt}^{\text{NON-SUPERVISORY STATUS}}} \quad . \quad (1)$$

This authority differential measure (*Authority Differential*$_{jt}^{\frac{\text{DISADVANTAGED}}{\text{PRIVILEGED}}}$) captures the relative status group power differential enjoyed by disadvantaged group members within U.S. federal agency *j* in year *t*. Higher values of this authority differential measure connote a relatively more favorable status-group power for women and minorities, respectively.[5] Both **H1** and **H2** predict that these authority differentials will be positively associated with perceived agency D&I commitment by employees, while the *Disadvantaged Group Premium Authority Differential*

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[4] Data on the gender and race/ethnicity of supervisors and non-supervisors are from OPM's *FedScope* data. The OPM Ethnicity and Race Indicator (ERI) classifies minority employees as: 1) Hispanic or Latino, 2) American Indian or Alaska Native, 3) Asian, 4) Black or African American, and 5) Native Hawaiian or other Pacific Islander. Employees classified as a supervisor or manager in OPM's FedScope are included as supervisors, and others as non-supervisor in this study (https://www.fedscope.opm.gov/datadefn/DataDefinitions.pdf).

[5] Numerical parity regarding the relative balance of supervisors to non-supervisors for the disadvantaged group vis-à-vis the privileged group is *Authority Differential*$_{jt}^{\frac{\text{DISADVANTAGED}}{\text{PRIVILEGED}}} = 1$.

11

Hypothesis (**H2**) posits that authority differentials will be of greater importance for women and minority employees than compared to men and non-minority employees.

Control Covariates

Overall Descriptive Representation variables are included to ensure that these characteristics are not confounding the authority differential effects of interest.[6] These measures are operationalized as the ratio of women to men total employees, as well as the ratio of minority to non-minority total employees, respectively. The statistical models also account for each respondent's demographic information including gender, racial/ethnic minority, and supervisory status to control their effects on the evaluations of agency D&I efforts. The findings of previous research have shown that differences in the demographic characteristics significantly affect various types of workplace evaluations (e.g., Choi & Rainey, 2014). *Gender* variable is recorded as 1 for female respondents and 0 for male respondents. *Minority* variable is measured as 1 for racial/ethnic minority respondents and 0 for racial/ethnic non-minority respondents. Each covariate should be negatively associated with the evaluations of agency D&I efforts since historically marginalized social identity groups should display, on average, less confidence with respect to agency D&I efforts. Lastly, *Supervisor* variable is defined as 1 for supervisors and 0 for employees in non-supervisory positions. This covariate is expected to yield a positive coefficient, given that those in authority positions are more likely to have favorable agency D&I evaluations than those lacking authority by virtue of their position.

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[6] These *overall* descriptive representation agency-level measures are highly correlated with analogous *supervisory* descriptive representation measures ($0.951 \leq \rho \leq 0.990$ range).

Agency Head Social Identity binary indicator variables are included to control for

potential confounding effects attributable to the presence of disadvantaged group administrative

leadership on employees' evaluations of agency D&I efforts. *Agency Head Social Identity*

variables based on gender (*Agency Head Gender Identity*) and racial/ethnic minority status

(*Agency Head Minority Identity*) are defined as 1 if agency top official(s) serving most months

within 12 months prior to FEVS (Federal Employee Viewpoint Survey) in this top position is a

woman and racial/ethnic minority, and 0 otherwise. These covariates are hypothesized to exhibit

a positive relationship with employee evaluations of agency D&I efforts since employee's

favorable perceptions of agency D&I efforts might be attributable to the presence of a female or

racial/ethnic minority top administrative officials, independent of authority differentials between

supervisory and non-supervisory personnel.

The statistical models also include covariates that might be correlated with employees'

perceived commitment of agency D&I efforts. *Proportion of Professional Employees* is simply

the natural logarithm of the ratio of professional personnel to the total employees within an

agency in a year.[7] Increases in this covariate should be associated with more favorable

evaluations of agency D&I efforts since professionals who have more task-related skills and

expertise in the workplace are more likely to feel included and respected in their organizations.

Also, *Organizational Size* is measured as the natural logarithm of total agency employment (full-

time and non-full-time) within an agency for a given year. This variable should yield a positive

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[7] The CPDF (Central Personnel Data File) categorizes occupational category as professional,

administrative, technical, clerical, other white collars, blue collar, and unspecified (OPM, 2009).

coefficient since larger federal agencies may have more resources (e.g., budget, personnel) to foster D&I within the workplace environment.

Empirical Strategy

The relationship between authority differentials and U.S. federal employee D&I evaluations is evaluated by estimating a series of ordinary least squares (OLS) regressions following a log-log elasticity functional form[8]:

$$\ln D \& I_{i,j,t} = \alpha_{i,j,t} + \sum_{m=1}^{M} \beta_m \ln X_{m\,j,t} + \sum_{n=1}^{N} \pi_n Z_{j,t} + \sum_{j=1}^{J-1} \lambda_{j-1} O_j + \sum_{t=1}^{T-1} \delta_{t-1} FEVS_t + \varepsilon_{i,j,t} \quad (2)$$

where *ln D&I* is a logged latent factor score measure of a federal agency employee's (*i*) assessment of D&I management efforts within their organization (*j*) within a given year's FEVS survey wave (*t*). The primary covariate vector of interest (*Authority Differential*) evaluating the gender or racial/ethnic composition of U.S. federal agencies is denoted by X_m and the corresponding parameter vector β_m. π represents the parameter vector corresponding to the Z_n set of control covariates described above, plus λ_{j-1} and δ_{t-1} represent the respective agency-level (O_j) and time-unit ($FEVS_t$) effects to account for unobserved differences in the latent D&I survey responses that may arise both across U.S. federal agencies and through time based on different FEVS survey repeated cross-sections in each year, plus a residual disturbance term ($\varepsilon_{i,j,t}$).

The inclusion of both agency-level and FEVS survey wave unit effects ensures that the estimates reflect differences among employees within agencies for a given survey wave. This model specification ensures that the core relationships of interest are neither confounded by idiosyncratic differences unique to each agency (e.g., organizational cultures, varying hiring and

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[8] This functional form mitigates outlying values while offering a comparable estimate metric.

promotion practices, different types of employee qualifications and skills) nor sampling and

other temporal-based variations across different FEVS survey waves. This explicit unit effects

approach to modeling groupwise heterogeneity is advantageous since it will yield both more

conservative and less biased statistical estimates compared to estimating separate random effects

(intercepts and/or slopes) for agencies and time/survey waves that may be confounded by both

unobserved agency-level and sampling differences. All models are estimated with robust

standard errors clustered by agency, which accounts for intra-agency unit dependence among

survey respondents. Because authority differential measures are based on objective data that is

generated from a different data source than the perception-based dependent variable, common

source bias is not a concern here (Favero & Bullock, 2015).

EMPIRICAL EVIDENCE

For purposes of brevity, only the regression elasticity (coefficient) estimates are reported

involving the primary covariates evaluating the relationship between the gender and racial/ethnic

composition of U.S. federal agencies and their employees' evaluations of the former efforts at

fostering D&I within the organizational environment. The full set of regression estimates appears

in **Table B2** and **Table B3,** located in the Online Appendix (**Appendix B**). On average, all

supervisor respondents offer more positive agency D&I evaluations compared to non-

supervisory respondents. This is hardly surprising given the authority differential between these

two classes of federal employees. Yet, neither the gender and race/ethnicity of the agency head

nor the overall women and minority descriptive representation predict employee D&I

evaluations. These null findings are hardly surprising. Although agency heads exert significant

power and influence over policies and administrative direction, these transitory appointees have

limited ability to shape workplace and work group dynamics for an overwhelming majority of

individual employees within a federal agency. The null findings of overall women and minority

descriptive representation support our study's key premise: what matters for employee

evaluations of their own agency's efforts at fostering D&I is how authority is distributed within

an organization based on gender and race, not simply a sheer relative volume of employees with

these descriptive characteristics. The proportion of high-skilled professional employees is not

correlated with employee D&I evaluations, while organizational size is often positively

associated with employee assessments.

Baseline Models

Figure 1 displays the core set of elasticity estimates from four regression models of the

form of Equation (**2**). In this and all subsequent graphs, women authority differential model

estimates are denoted in **orange symbols** corresponding to point estimates, while the

race/ethnicity Authority Differential model specifications are denoted in **navy blue symbols**.

Models 1 & **2** evaluate the differential employee survey response regarding fostering D&I with

respect to the authority differential measure denoted in Equation (1) predicated on gender and

race/ethnicity of U.S. federal agency employees in the left panel of **Figure 1**. **Model 1** reveals

that a favorable gender power balance benefitting women is associated with fostering D&I

within U.S. federal agencies consistent with **H1** for men and women employee respondents alike.

The standardized percentage change increase in the authority differential between women (men)

in supervisory (non-supervisory) positions and men (women) in non-supervisory (supervisory)

positions is associated with a 5.925% ($0.152 \times 38.864\%$) average rise in agency D&I efforts

perceived by men employees.[9] The gender differential between men and women employees is statistically negligible since it is associated with a –0.006% (–0.00016 × 38.864) drop in D&I evaluations. Yet, **Model 2** (right panel of **Figure 1**) uncovers a sizable but statistically imprecise relationship is observed for non-minority employees in terms of their connection between the minority to non-minority authority differential (β elasticity estimate = 0.0522, p = 0.126), while this estimate is both greater and significantly more favorable for minority employees vis-à-vis non-minority employees (β elasticity estimate = 0.047, p = 0.005). **H1** is supported only for minority employee D&I evaluations, and hence, is highly contingent upon a disadvantaged group premium (**H2**) based on minority federal employee respondents.

FIGURE 1
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Single Social Identity Group)

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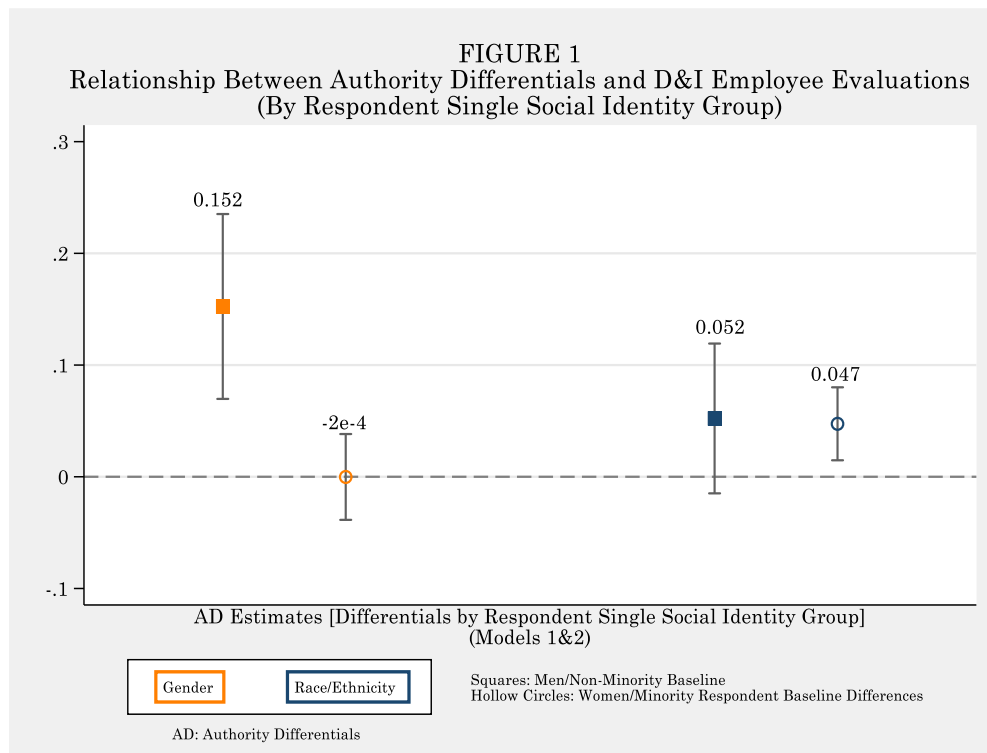
[9] This is computed as: Marginal Effect × {(+1 Standard Deviation Above Mean) – [(−1 Standard Deviation Below Mean] × 100}.

Taken together, these findings show clear, albeit conditional support for the importance of authority differentials for federal employees' evaluations of agency D&I efforts. Homogenous responses to gender power balances arise between women and men federal agency employees when evaluating agency D&I efforts, while minority employees' D&I evaluations respond more favorably to improving minority power balances than do non-minority employees. This differential response pattern might be attributable to the gap between women and minorities occupying positions holding greater authority within federal agencies (OPM, 2018), coupled with minorities being disproportionately under-represented in senior-level positions (Lardy, 2021) (**H1: *Baseline* Authority Differential Hypothesis: Supported**).

Figure 2 displays the authority differential estimates broken down into intersectionality classifications of Men/Non-Minority (Baseline), Non-Minority Women/Minority Men, and Minority Women respondents in the gender and race/ethnicity authority differential models (see **Table B2: Models 3 & 4**), respectively.[10] Parsing respondents by gender into finer intersectional distinctions based on gender-race/ethnicity combinations suggests that improving the balance of power for women vis-à-vis men within federal agencies is associated with roughly identical D&I employee evaluations. The baseline estimate for men and non-minority men respondents are effectively identical to one another based on **Models 1 & 3** (**Model 1**: β_{Men} elasticity estimate = 0.152, p < 0.001; **Model 3**: $\beta_{Non\text{-}Minority\,Men}$ elasticity estimate = 0.153, p < 0.001) consistent with **H1** per the left panel of **Figure 2**. Although the authority differential estimates for non-minority

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[10] Intersectional Authority Differentials are not made publicly available by the OPM due to the OPM Data Release Policy. Agency-level gender data are located in FedScope Employment Cube while agency-level race/ethnicity data is located in FedScope Diversity Cube.

women and minority women neither differ from this baseline estimate ($\beta_{\text{Non-Minority Women}}$ elasticity estimate differential = −0.003, p = 0.875; $\beta_{\text{Minority Women}}$ elasticity estimate differential = 0.012, p = 0.595) nor differ from one another ($\beta_{\text{Minority Women}} - \beta_{\text{Non-Minority Women}}$ elasticity estimate differential = 0.015, p = 0.402). These uniform responses reject the *Disadvantaged Group Premium Authority Differential Hypothesis* (**H2**) since a consistent relationship is obtained between men and women federal employee evaluations of agency D&I efforts, as well as for intersectional groups comprised of minority women employees.

FIGURE 2
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)
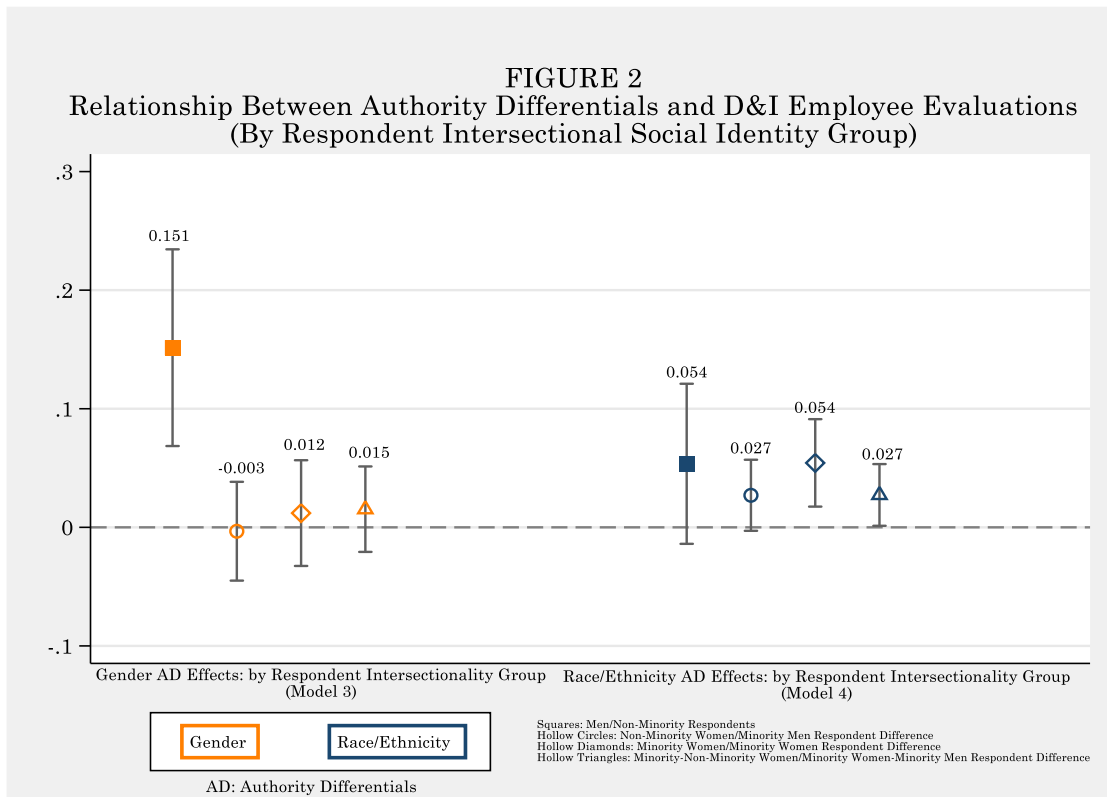
The empirical patterns on the right panel of **Figure 2** (**Model 4**) involving race/ethnicity status-group power imbalances reveal clear intersectionality differences consistent with the *Disadvantaged Group Premium Authority Differential Hypothesis* (**H2**). Non-minorities do not view improving authority differentials as contributing to improving agency D&I efforts ($\beta_{\text{Non-Minority Men}}$ elasticity estimate = 0.053, p = 0.119). However, minority men and minority women

each have a significantly more sanguine view of how improving authority differentials favoring minority employees offers some improvement in agency D&I efforts compared to non-minority employees offer ($\beta_{\text{Minority Men}}$ elasticity estimate differential = 0.027, p = 0.077; $\beta_{\text{Minority Women}}$ elasticity estimate differential = 0.054, p = 0.004), with minority women employees making a stronger connection between authority differentials and fostering a diverse and inclusive agency environment than compared to minority men employees ($\beta_{\text{Minority Women}} - \beta_{\text{Minority Men}}$ elasticity estimate differential = 0.027, p = 0.040). The standardized percentage change increase in this minority authority differential effect is associated with a modest 2.155% (0.054 × 39.655), rise in minority women respondents' D&I evaluations compared to the non-minority baseline effect. This is higher by a factor differential of 2.010 (2.155% / 1.072%) compared to minority men respondents' difference in relation to the non-minority baseline.

[Insert FIGURE 2 about here]

Both the numerical estimates and statistical inferences offer clear evidence of the importance associated with gender-based authority differentials for fostering D&I evaluations among federal employee respondents, regardless of gender or race/ethnicity. This evidence is consistent with **H1**. Although improving the minority authority differential is associated with improving D&I evaluations for only minority employees, these substantive effect sizes are considerably smaller compared to gender authority differential effects. These distinct effect sizes between gender and minority authority differentials cannot be attributed as an artifact due to dissimilar empirical distribution functions for each measure (Mean $_{\text{Gender Authority Differential}}$ = 0.715, Mean $_{\text{Minority Authority Differential}}$ = 0.723; Standard Deviation $_{\text{Gender Authority Differential}}$ = 0.133, Standard Deviation $_{\text{Minority Authority Differential}}$ = 0.145). This finding reflects a consensus among federal employees on the role of gender-based authority differentials with respect to improving D&I

20

(**H2:** *Disadvantaged Group Premium* **Authority Differential Hypothesis: Partially Supported**).

Although these empirical findings are important for understanding how personnel composition can contribute to fostering diversity and inclusion within public organizations, it remains unclear whether these findings are driven by evaluations made by those agency employees holding supervisory authority or instead by non-supervisory agency personnel. Next, these issues are analyzed by estimating models that disaggregate these authority differential effects by both gender and racial/ethnic groups of respondents, and also by distinctions between non-supervisory versus supervisory agency personnel.

Authority Differential Effects Between Non-Supervisor and Supervisor Respondents

Now, we turn our attention to evaluating whether authority differential effects on employee D&I evaluations differ between non-supervisory and supervisory respondents. These authority differential estimates that distinguish between status-group position of employee respondents appear below in **Figures 3** (non-supervisory respondents) and **4** (supervisory respondents), respectively.[11] The **orange-colored** set of point estimates once again reveals that gendered authority differential effects provide both consistent and statistically meaningful associations with agency employee D&I evaluations across both gender and intersectional respondent model specifications (**Table B3: Models 5** & **7**). Moreover, these authority differential effects on employee D&I evaluations do not systematically vary by gender, race/ ethnicity, or the corresponding intersectional identity groups for both non-supervisory (**Figure 3**) and supervisory (**Figure 4**) personnel based on the modest and statistically indiscernible

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[11] Tabular regression results appear in **Table B3** at in the Online Appendix (**Appendix B**).

differential effects (see **orange-colored** point estimates displayed to the right of the baseline estimates for Men respondents in **Figures 3** & **4**). Interestingly, the baseline and various disadvantaged group respondents are noticeably higher for supervisors (e.g., $\beta_{\text{Men Supervisor}}$ elasticity estimate = 0.194/0.193, p < 0.001/0.001) than non-supervisors ($\beta_{\text{Men Non-Supervisor}}$ elasticity estimate = 0.137/0.136, p = 0.003/0.003). Those in supervisory positions view improving gendered authority differential as being more effective at fostering diversity and inclusion compared to those lacking such authority within federal agencies.

FIGURE 3
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
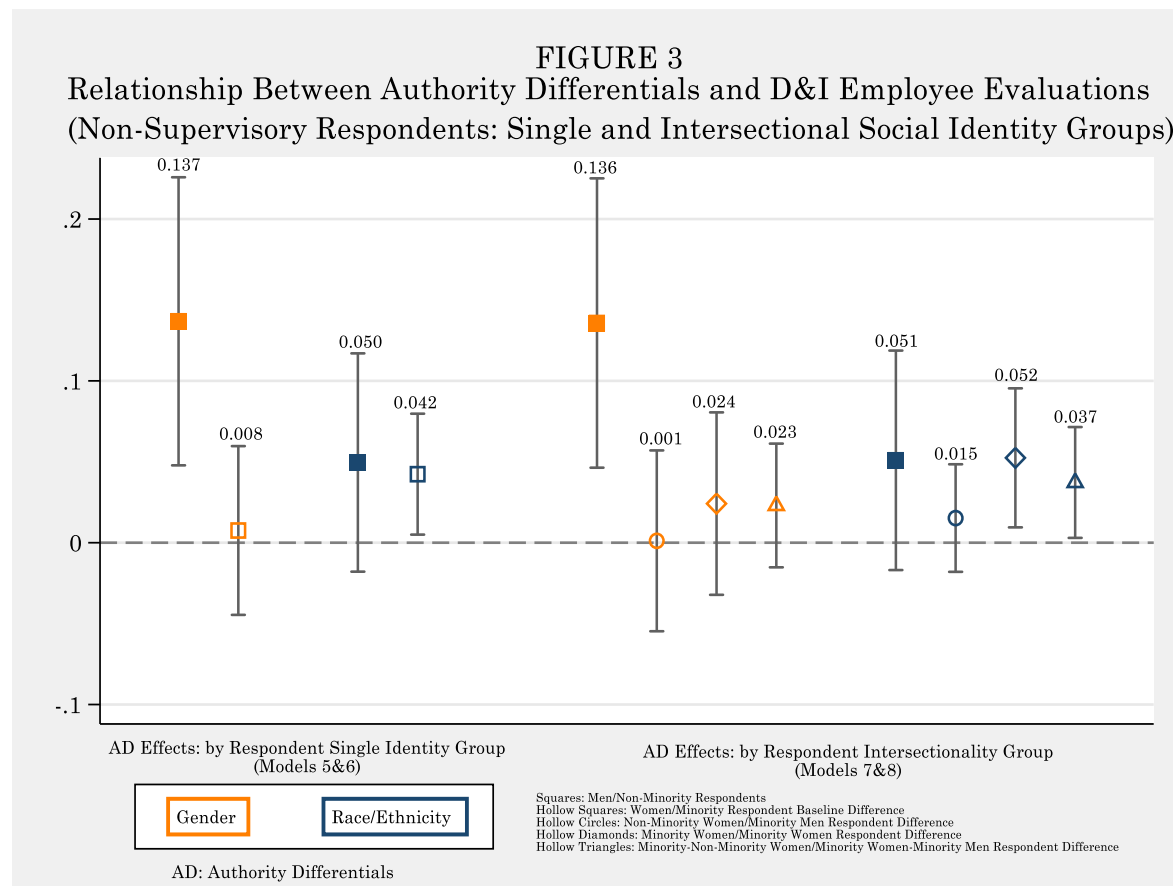
In the left-hand panels of **Figures 3** & **4** (**Table B3: Model 6**), the **navy blue-colored** set of point estimates uncover statistically significant disadvantaged group premium for both minority non-supervisors ($\beta_{\text{Minority Non-Supervisor}}$ elasticity estimate differential = 0.042, p = 0.027) and supervisors ($\beta_{\text{Minority Supervisor}}$ elasticity estimate differential = 0.070, p < 0.001). These

disadvantaged group premium differentials displayed in the left panel of **Figures 3** & **4** (**Table B3: Model 6**) represent a 1.669% (0.042×39.405) and 2.866% (0.070×41.477) standardized percentage change difference in the minority versus non-minority respondent authority differential relationship with respect to D&I evaluations, respectively. These authority differential effects observed between minority supervisory and non-supervisory personnel (see left panel of **Figures 3** & **4**) are notable, albeit estimated with some nontrivial imprecision ($\beta_{\text{Minority Supervisor}} - \beta_{\text{Minority Non-Supervisor}}$ elasticity estimate differential = 0.027, p = 0.121). The intersectional respondent model estimates (**Table B3: Model 8**) highlight a critical distinction between supervisory and non-supervisory respondents' views of how minority authority differentials are associated with their D&I evaluations. In **Figure 3** (right-hand panel), only minority women non-supervisors exhibit significantly larger minority authority differential effects compared to the non-minority non-supervisor baseline null effects ($\beta_{\text{Minority Women Non-Supervisor}}$ elasticity estimate differential = 0.052, p = 0.017) by a 2.066% (0.052×39.405) standardized percentage change in the minority authority differential. Moreover, minority women non-supervisors exhibit marginally significant larger minority authority differential effects compared to minority men counterparts ($\beta_{\text{Minority Women Non-Supervisor}} - \text{Minority Men Non-Supervisor}$ elasticity estimate differential = 0.037, p = 0.033) – a 1.466% (0.037×39.405) standardized percentage change effect. Yet, such intersectional group differences dissipate between minority women and minority men holding supervisory positions within U.S. federal agencies. Although **Figure 4** reveals that both men and women minority supervisors clearly make a stronger connection between minority authority differentials within their agencies than non-minority supervisor colleagues ($\beta_{\text{Minority Men -Supervisor}}$ elasticity estimate differential = 0.066, p = 0.001; $\beta_{\text{Minority Women Supervisor}}$ elasticity estimate differential = 0.067, p = 0.005), albeit this difference is

trivial ($\beta_{\text{Minority Women Non-Supervisor} - \text{Minority Men Non-Supervisor}}$ elasticity estimate differential = 0.0001, p = 0.997).

FIGURE 4
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
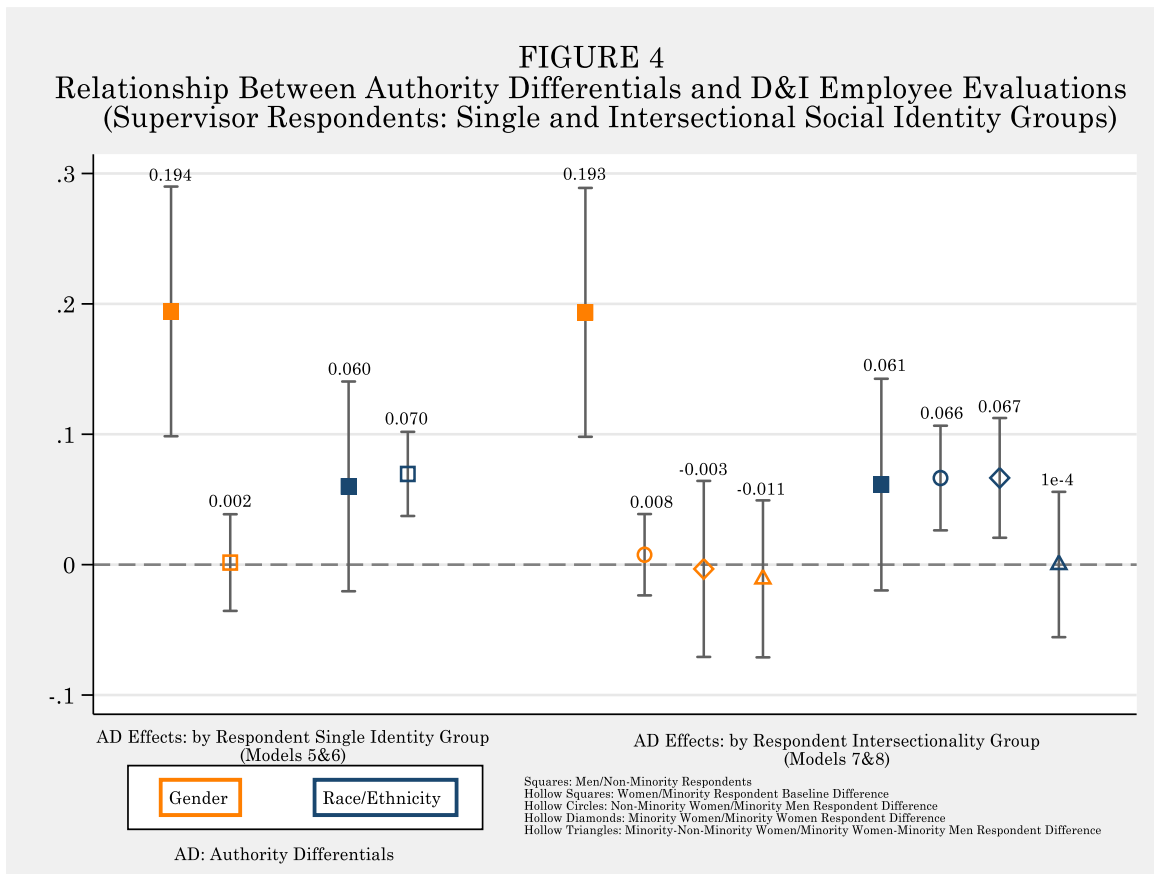
Summary of Ancillary and Sensitivity Analyses

The data are analyzed in a variety of additional ways reported in the **Online Appendix**. **Appendix D** employs an alternative, partial measure of authority differential that only incorporates the natural logarithm of the ratio of disadvantaged group supervisors to disadvantaged group non-supervisors, thus excising these proportions for privileged group (men and non-minorities) agency personnel incorporated into the measure characterized by Equation (1). Because these alternative authority differential measures purge the relative balance of agency positions held by men and non-minority employees, they lack a reference group, and hence, overstate the balance of power deficit experienced by women and minority federal agency

employees.[12] As a result, these supplementary findings yield not only smaller authority differential estimates for all employees, but also more modest gender and racial/ethnic minority respondent differences associated compared to those reported in the manuscript.

In addition, both ancillary and sensitivity analyses of these data are undertaken to evaluate potential sources of heterogeneity associated with authority differential effects reported here (**Appendix F&H**), as well as alternative explanations of these employee evaluations relating to fostering D&I within their federal agencies (**Appendix E, G,** & **I**). The ancillary analyses of these data in **Appendix F** reveal that the relationship between minority authority differentials and D&I evaluations is stronger during the Obama presidency compared to the Trump presidency. Such presidential differences are primarily the result of non-minority (and especially minority women) federal employee respondents serving in non-supervisory positions.

Ancillary analyses evaluating differential authority differential effects based on the gender and race/ethnicity of the top administrative official examine whether these conditions are associated with a positive salutary conditioning effect on the statistical relationship between authority differentials and employee D&I evaluations (see **Appendix H**). Evidence consistent with these authority differential differentials predicated on a minority top agency official is observed for both minority employees (especially minority women employees), serving in non-supervisory agency positions. Oddly, women employees' D&I evaluations are less anchored to gender authority differentials compared to those of men employees. One plausible explanation

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[12] The mean values of the alternative women and minority authority differential measures are 0.122 and 0.121, while the mean values for the reported authority differential measures are 0.715 and 0.723, respectively. Further, these measures are correlated at 0.315 and 0.371, respectively.

for these findings might be that women employees are more sensitive to multiple identities or self-schema than men, and thus the gender identity of women employees does not affect their organization's D&I evaluations much (Fernandez et al., 2013, p.117).

An alternative latent employee evaluation measure is employed as a dependent variable that taps into the broader concept of organizational justice. These results appearing in **Appendix E** are substantively consistent with the reported findings, thus exhibiting convergent validity with our reported D&I measure. Additionally, these consistent results support normative basis of our study focusing on Frederickson's (1990) concept of "equality of means opportunity." Sensitivity analyses reported in **Appendix G** involving the omission of the supervisory descriptive representation control covariate, as well as extreme-valued 'above parity' authority differential observations, produce statistical estimates and inferences that are substantively identical to those reported here. Statistical models accounting for contagion effects between social identity groups (see **Appendix I**) yield authority differential estimates similar to those reported in the manuscript, except for the more conservative and imprecise elasticity estimate differential between minority women non-supervisor and minority men non-supervisor respondents. Finally, a series of differences in means tests rejects social desirability bias reflected by D&I employee evaluations insofar that disadvantaged group respondents (women and minority U.S. federal government employees) will naturally tend to have an equal, or perhaps more sanguine view of agency D&I efforts compared to privileged group respondents (men and non-minority U.S. federal government employees). Instead, the evidence suggests that disadvantaged group respondents have a noticeably more skeptical view of their agency's D&I efforts compared to privileged group respondents, regardless of authority differentials, as well as whether they serve in either supervisory or non-supervisory positions (see **Appendix J**).

IMPLICATIONS

Normative theories of representation applied to governance problems presume that sufficient numbers or proportions of disadvantaged group members are required to ensure that collective decisions reflect their group-based interests (e.g., Pitkin, 1967; Krislov, 1974; Mosher, 1968; cf. Guinier, 1994). Although this is a sensible approach for analyzing the relationship between citizens and government officials (e.g., Meier & Nicholson-Crotty, 2006; Nicholson-Crotty, Grissom, Nicholson-Crotty, & Redding, 2016), it is not ideally suited for analyzing social equity within public organizations where power is asymmetrically distributed via hierarchies.

This study has sought to elucidate the precise nature of how the representation of disadvantaged group members, based on authority differentials, affects employee sentiments regarding social equity within public sector organizations. Given the inherent asymmetrical distribution of authority within organizations, examining the authority differentials experienced by disadvantaged group members offers insight into the dynamics of the modern U.S. administrative state since it takes seriously the importance of power asymmetries within organizations affecting historically marginalized groups within American society. The importance of authority differentials as an organizational solution for addressing diversity and inclusion challenges within U.S. federal agencies is compatible with Jane Mansbridge's (1998, 2015) admonition that effective conversion of descriptive representation into substantive (policy) representation requires that historically disadvantaged groups go merely beyond numbers, but more importantly, attain positions of authority within government for purposes of achieving *de facto* legitimacy associated with government decisions. On a practical level, improving authority differentials in favor of women and minorities within the U.S. federal civilian workforce can serve as one critical element of a multi-faceted strategy designed to facilitate the meeting of

workforce diversity goals laid out not only by both the U.S. Merit Systems Protection Board and U.S. Office of Personnel Management (MSPB, 2011; OPM, 2011; 2018), but also codified in Executive Orders 13583 and 14035.

Unfortunately, certain issues remain beyond the scope of the present study. Since our study simply takes relative authority differentials "as given" to examine how these considerations shape employees' views of agency D&I efforts, our study is not capable of fully addressing the sources of these relative authority differentials, such as implicit discrimination within organizations or differences in qualifications. Also, this study focuses solely on a single mechanism, authority differentials, to demonstrate a systematic relationship between the gender, racial composition of authority differentials and employee evaluation of agency D&I efforts, while acknowledging that power dynamics in public organizations can be influenced by other factors, such as rule abidance or interpersonal relationships (e.g., Portillo & DeHart-Davis, 2009; Ragins & Sundstrom, 1989). Nonetheless, if women and minorities cannot attain formal positions of authority within public sector organizations, they are also more likely to be denied opportunities to access other means of power as well (Lewis, 2000).

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ONLINE APPENDIX

Improving Social Equity within Public Organizations:
Authority Differentials as Reference Points for
Fostering Diversity and Inclusion within U.S. Federal Agencies

Full List of U.S. Federal Agencies (J = 105 Agencies)

Stand-Alone (Non-Nested) Agencies	Sub–Agencies (Nested Agencies)
Agency for International Development	Defense Commissary Agency
Broadcasting Board of Governors (U.S. Agency for Global Media)	Defense Contract Audit Agency
Court Services and Offender Supervision Agency for the DC	Defense Contract Management Agency
Department of Education	Defense Finance and Accounting Service
Department of Energy	Defense Information Systems Agency
Department of Housing and Urban Development	Defense Logistics Agency
Department of State	Defense Missile Defense Agency
Environmental Protection Agency	Defense Office of the Inspector General
Equal Employment Opportunity Commission	Defense TRICARE Management Activity (Defense Health Agency)
Federal Communications Commission	Defense Education Activity
Federal Energy Regulatory Commission	Defense Washington Headquarters Service
Federal Trade Commission	Defense Department of the Air Force
General Services Administration	Defense Department of the Army
National Aeronautics and Space Administration	DefenseDepartment of the Navy
National Archives and Records Administration	AG–Agricultural Research Service
National Credit Union Administration	AG–Farm Service Agency
National Gallery of Art	AG–Food Safety and Inspection Service
National Labor Relations Board	AG–Forest Service
National Science Foundation	AG–Natural Resources Conservation Service
Nuclear Regulatory Commission	AG–Office of the Chief Financial Officer
Office of Personnel Management	Commerce–Bureau of Census
Pension Benefit Guaranty Corporation	Commerce–International Trade Administration
Railroad Retirement Board	Commerce–National Institute of STDs & Technology
Securities and Exchange Commission	Commerce–National Oceanic & Atmospheric Admin
Small Business Administration	Commerce–U.S. Patent and Trademark Office
Social Security Administration	HHS–Administration for Children and Families
	HHS–Centers for Disease Control & Prevention
	HHS–Centers for Medicare & Medicaid Services
	HHS–Food and Drug Administration
	HHS–Health Resources & Services Administration
	HHS–Indian Health Service
	HHS–National Institutes of Health
	HHS–Office of the Secretary
	HHS–Office of Inspector General
	DHS–Federal Emergency Management Agency
	DHS–Federal Law Enforcement Training Center
	DHS–Transportation Security Administration
	DHS–U.S. Citizenship & Immigration Services
	DHS–U.S. Coast Guard
	DHS–U.S. Customs and Border Protection
	DHS–U.S. Immigration & Customs Enforcement
	DHS–U.S. Secret Service
	DHS–National Protection & Program Directorate
	Justice–Alcohol, Tobacco, Firearms & Explosives

	Justice–Bureau of Prisons
	Justice–Drug Enforcement Administration
	Justice–Executive Office for Immigration Review
	Justice–Executive Office for U.S. Attorneys
	Justice–Federal Bureau of Investigation
	Justice–U.S. Trustee Program
	Justice–U.S. Marshals Service
	Labor–Bureau of Labor Statistics
	Labor–Employment & Training Administration
	Labor–Wage and Hour Division
	Labor–Office of Workers Compensation Program
	Labor–Mine Safety & Health Administration
	Labor–Occupational Safety&Health Administration
	Labor–Employee Benefits Security Administration
	Labor–Office of the Solicitor
	Interior–Bureau of Indian Affairs
	Interior–Bureau of Land Management
	Interior–Bureau of Reclamation
	Interior–Fish and Wildlife Service
	Interior–Geological Survey
	Interior–National Park Service
	Interior–Office of The Secretary
	Treasury–Bureau of Engraving and Printing
	Treasury–Departmental Offices
	Treasury–Fiscal Service
	Treasury–Internal Revenue Service
	Treasury–Office of the Comptroller of the Currency
	Treasury–IG For Tax Administration
	Treasury–U. S. Mint
	Transportation–Federal Aviation Administration
	Transportation–Federal Highway Administration
	Transportation–Federal Railroad Administration
	VA–National Cemetery Administration
	VA–Veterans Benefits Administration
	VA–Veterans Health Administration

TABLE B1: Descriptive Statistics and Data Source for Variables in Analysis

Variables	Mean	SD	Min	Max	Source
Evaluations of Agency D&I Efforts (Ln)	0.684	0.525	−4.830	1.126	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Evaluations of Agency Organizational Justice (Ln)	0.838	0.534	−6.509	1.354	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Authority Differential: Women Employees (Ln)	−0.354	0.194	−1.567	0.253	OPM FedScope 2010–2019 September
Authority Differential: Racial/Ethnic Minority Employees (Ln)	−0.344	0.200	−1.569	0.507	OPM FedScope 2010–2019 September
Overall Descriptive Representation for Women (Ln)	−0.274	0.627	−1.352	1.239	OPM FedScope 2010–2019 September
Overall Descriptive Representation for Racial/Ethnic Minorities (Ln)	−0.593	0.562	−2.414	2.362	OPM FedScope 2010–2019 September
Gender	0.444	0.497	0	1	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Minority	0.342	0.474	0	1	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Supervisory Status	0.244	0.429	0	1	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Agency Head Gender Identity	0.187	0.390	0	1	Various Sources including Agency Website, LinkedIn
Agency Head Minority Identity	0.199	0.399	0	1	Various Sources including Agency Website, LinkedIn
Proportion of Professional Employees (Ln)	−1.699	1.032	−6.410	−0.106	OPM FedScope 2010–2019 September
Organizational Size (Ln)	10.453	1.500	6.482	12.743	OPM FedScope 2010–2019 September
Absolute Authority Differential: Women Employees (Ln)	−2.151	0.322	−3.631	−0.989	OPM FedScope 2010–2019 September
Absolute Authority Differential Racial/Ethnic Minority Employees (Ln)	−2.171	0.356	−3.683	−1.217	OPM FedScope 2010–2019 September

TABLE B2: Statistical Models Generating *Figure 1* & 2 Authority Differential Elasticity Estimates

Covariates	Model 1	Model 2	Model 3	Model 4
Authority Differential: Women Employees	0.152*** (0.042)	_____	0.151*** (0.042)	_____
Authority Differential: Women Employees × Women Respondents	−2.000E-4 (0.019)	_____	_____	_____
Authority Differential: Women Employees × Non-Minority Women Respondents	_____	_____	−0.003 (0.021)	_____
Authority Differential: Women Employees × Minority Women Respondents	_____	_____	0.012 (0.022)	_____
Authority Differential: Minority Employees	_____	0.052 (0.034)	_____	0.054 (0.034)
Authority Differential: Minority Employees × Minority Respondents	_____	0.047** (0.016)	_____	_____
Authority Differential: Minority Employees × Minority Men Respondents	_____	_____	_____	0.027+ (0.015)
Authority Differential: Minority Employees × Minority Women Respondents	_____	_____	_____	0.054** (0.019)
Overall Women Descriptive Representation	−0.006 (0.055)	_____	−0.006 (0.055)	_____
Overall Minority Descriptive Representation	_____	0.054 (0.045)	_____	0.054 (0.045)
Women Respondent	−0.040*** (0.007)	−0.040*** (0.004)	_____	−0.027*** (0.005)
Minority Respondent	−0.094*** (0.004)	−0.078*** (0.006)	−0.077*** (0.004)	_____
Non-Minority Women Respondent	_____	_____	−0.028** (0.008)	_____
Minority Men Respondent	_____	_____	_____	−0.068*** (0.006)
Minority Women Respondent	_____	_____	−0.060*** (0.007)	−0.095*** (0.007)
Supervisor Respondent	0.127***	0.127***	0.127***	0.127***

	(0.007)	(0.007)	(0.007)	(0.007)
Women Agency Head	−0.003	_____	−0.003	_____
	(0.004)		(0.005)	
Minority Agency Head	_____	0.008	_____	0.008
		(0.006)		(0.006)
Proportion of Professional Employees (Ln)	0.008	0.022	0.008	0.022
	(0.042)	(0.050)	(0.042)	(0.050)
Organizational Size (Ln)	0.075^*	0.065	0.075^*	0.065
	(0.032)	(0.040)	(0.032)	(0.040)
Agency Fixed Effects	YES	YES	YES	YES
FEVS Survey-Wave Fixed Effects	YES	YES	YES	YES
N x T	2,507,103	2,507,103	2,507,103	2,509,558

NOTE: Robust standard errors are clustered by agencies. $^+ p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

TABLE B3: Statistical Models Generating *Figures 3 & 4* Authority Differential Elasticity Estimates

Covariates	Model 5	Model 6	Model 7	Model 8
Authority Differential: Women Employees	0.137** (0.045)	————	0.136** (0.045)	————
Authority Differential: Women Employees × Women Respondents	0.008 (0.026)	————	————	————
Authority Differential: Women Employees × Supervisor Respondents	0.057 (0.042)	————	0.058 (0.042)	————
Authority Differential: Women Employees × Women Respondents × Supervisor Respondents	−0.006 (0.030)	————	————	————
Authority Differential: Women Employees × Non-Minority Women Respondents	————	————	0.001 (0.028)	————
Authority Differential: Women Employees × Minority Women Respondents	————	————	0.024 (0.028)	————
Authority Differential: Women Employees × Non-Minority Women Respondents × Supervisor Respondents	————	————	0.006 (0.029)	————
Authority Differential: Women Employees × Minority Women Respondents × Supervisor Respondents	————	————	−0.027 (0.040)	————
Authority Differential: Minority Employees	————	0.050 (0.034)	————	0.051 (0.034)
Authority Differential: Minority Employees × Minority Respondents	————	0.042* (0.019)	————	————
Authority Differential: Minority Employees × Supervisor Respondents	————	0.010 (0.027)	————	0.010 (0.027)
Authority Differential: Minority Employees × Minority Respondents × Supervisor Respondents	————	0.027 (0.017)	————	————
Authority Differential: Minority Employees × Minority Men Respondents	————	————	————	0.015 (0.017)
Authority Differential: Minority Employees × Minority Women Respondents	————	————	————	0.052* (0.022)
Authority Differential: Minority Employees × Minority Men Respondents × Supervisor Respondents	————	————	————	0.051** (0.019)
Authority Differential: Minority Employees × Minority Women Respondents × Supervisor Respondents	————	————	————	0.014 (0.030)
Overall Women Descriptive Representation	−0.007 (0.055)	————	−0.007 (0.055)	————

	(1)	(2)	(3)	(4)
Overall Minority Descriptive Representation	———	0.054 (0.045)	———	0.054 (0.045)
Women Respondent	−0.039*** (0.010)	−0.040*** (0.004)	———	−0.027*** (0.004)
Minority Respondent	−0.094*** (0.004)	−0.082*** (0.007)	−0.077*** (0.004)	———
Non-Minority Women Respondent	———	———	−0.027* (0.011)	———
Minority Men Respondent	———	———	———	−0.071*** (0.006)
Minority Women Respondent	———	———	−0.058*** (0.011)	−0.097*** (0.009)
Supervisor Respondent	0.145*** (0.021)	0.129*** (0.014)	0.146*** (0.021)	0.130*** (0.014)
Women Respondent × Supervisor Respondent	0.006 (0.015)	———	———	———
Minority Respondent × Supervisor Respondent	———	0.016+ (0.009)	———	———
Non-Minority Women Respondent × Supervisor Respondent	———	———	0.004 (0.013)	———
Minority Men Respondent × Supervisor Respondent	———	———	———	0.014 (0.009)
Minority Women Respondent × Supervisor Respondent	———	———	0.002 (0.020)	0.016 (0.015)
Women Agency Head	−0.003 (0.004)	———	−0.003 (0.005)	———
Minority Agency Head	———	0.008 (0.006)	———	0.007 (0.006)
Proportion of Professional Employees (Ln)	0.007 (0.041)	0.022 (0.050)	0.007 (0.041)	0.022 (0.050)
Organizational Size (Ln)	0.076* (0.032)	0.065 (0.040)	0.076* (0.032)	0.065 (0.040)
Agency Fixed Effects	YES	YES	YES	YES
FEVS Survey-Wave Fixed Effects	YES	YES	YES	YES
N x T	2,507,103	2,507,103	2,507,103	2,507,103

NOTE: Robust standard errors are clustered by agencies.   + $p < 0.10$,   * $p < 0.05$,   ** $p < 0.01$,   *** $p < 0.001$.

APPENDIX C:

Construction and Estimation of Latent Measures for Evaluations of Agency D&I Efforts & Organizational Justice Dependent Variables

The latent measure, *Evaluations of Agency D&I Efforts*, is constructed to measure individual employees' perception of agencies' commitment to diversity and inclusion (D&I) for the corresponding year observed in the sample (2010–2019). This variable was measured using three survey questions from the Federal Employee Viewpoint Survey (FEVS), as follows: (1) "*Supervisors/team–leaders in my work unit are committed to a workforce representative of all segments of society.*"; (2) "*Policies and programs promote diversity in the workplace (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring).*"; and (3) "*Managers/supervisors/team leaders work well with employees of different backgrounds.*" Higher values indicate greater perceived agencies' commitment to diversity and inclusion. This latent variable has been tested and validated in earlier research (e.g, Choi and Rainey 2010; 2014; Pitts 2009).

To create the latent variable, *Evaluations of Agency D&I Efforts*, and to test the model fit, confirmatory factor analysis (CFA) was conducted. Based on the findings from prior research, we presume that three survey questions tap a single dimension, and thus employed a single–factor CFA model. Also, survey sample weights provided in the survey for each year were applied in the CFA model to "achieve the survey objective of making inferences regarding the perceptions of the population of Federal employees about workforce management in their analysis." (Office of Personnel Management (OPM) 2013: 22). OPM provides sampling weights for survey users to adjust for the different probability of being selected to participate in the survey across agency and agency subgroups, and the bias resulting from sample size variation (OPM 2013).

After conducting the CFA model, the measurement model was evaluated to determine whether the model fit was adequate. The model fit was analyzed by investigating through both the standardized root mean square (SRMR) and the coefficient of determination (CD) statistics which happen to be the only goodness–of–fit statistics generated when sample weights are used in statistical estimation. The SRMR is an absolute fit index that represents the average of the standardized residuals between the observed and predicted correlation matrices (Chen 2007). This goodness of fit statistic is interpreted as the indicator of a good fit when SRMR produces a value lower than 0.05 (Kline 2011; Hu and Bentler 1999). The SRMR of the hypothesized measurement model produced nearly 0.000 throughout the 2010–2019 surveys, indicating the model fits the data well. Considering a higher value of CD indicates a better fit of the model, CD statistics of the model also indicate a good fit of the model (the average value of CD for the measurement model in 2010–2019 surveys: 0.806). Kline (2011: 116) posits that all indicators to measure latent variables should "have relatively high standardized factor loadings on that factor," and suggests 0.70 as the critical value to have convergent validity of the measure. The results of CFA showed that high proportions of variance in survey items, between 0.67 and 0.82, are accounted for by the theoretically hypothesized construct, providing moderate support for the convergent validity (see **Figure C1** below). Based on these diagnostic tests, the measurement model employed to capture latent U.S. federal agencies' commitment to diversity and inclusion (D&I) provides valid estimates of the latent variable employed in this study.

Figure C1: Confirmatory Factor Analyses of the Latent Variable, *Evaluations of Agency D&I Efforts*
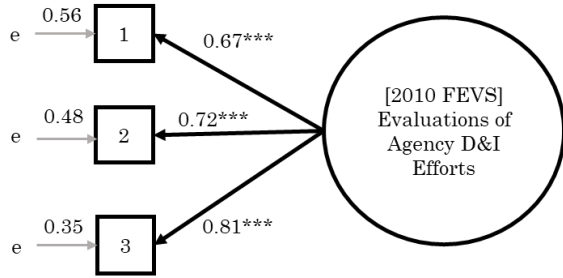
SRMR: 0.000 CD: 0.790
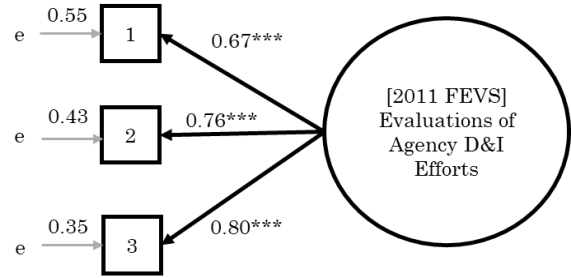
SRMR: 0.000 CD: 0.799
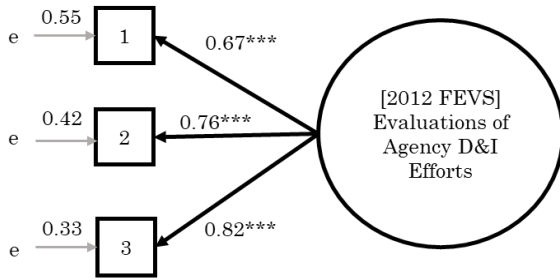
SRMR: 0.000 CD: 0.809
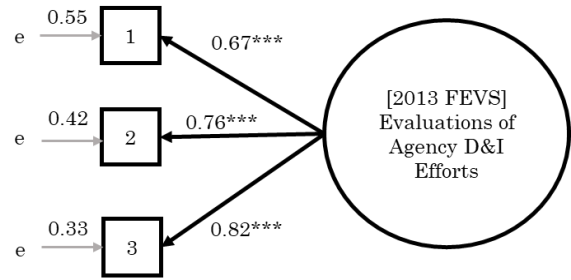
SRMR: 0.000 CD: 0.808
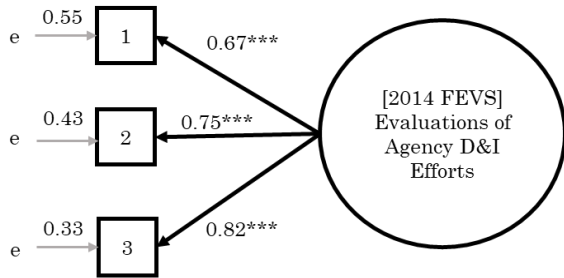
SRMR: 0.000 CD: 0.805
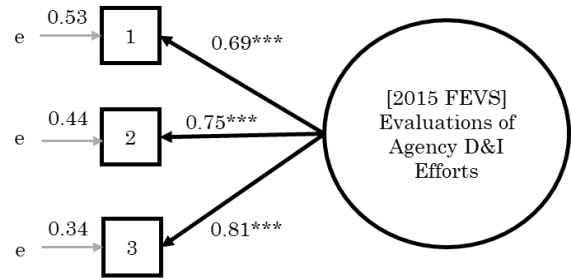
SRMR: 0.000 CD: 0.802
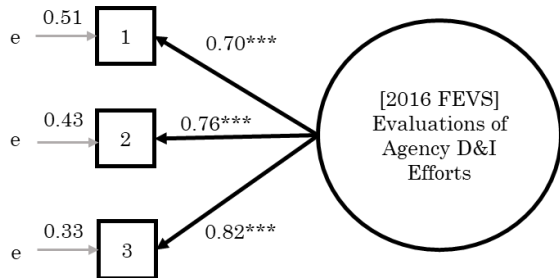
SRMR: 0.000 CD: 0.810
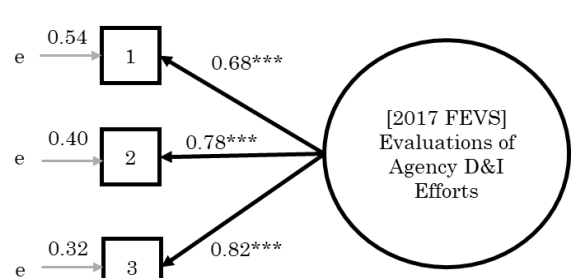
SRMR: 0.000 CD: 0.817
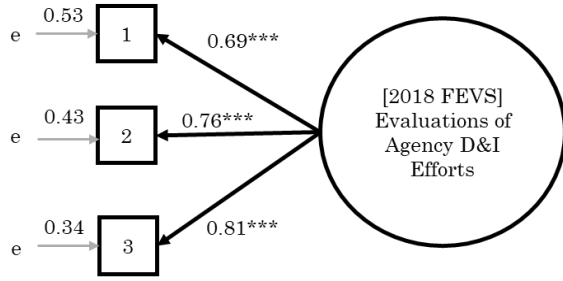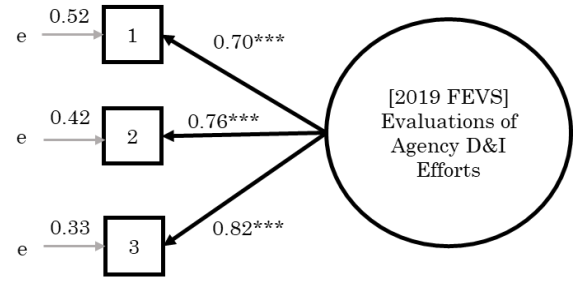
SRMR: 0.000 CD: 0.807   SRMR: 0.000 CD: 0.812

After creating the latent measure, *Evaluations of Agency D&I Efforts*, we conducted separate higher–order confirmatory factor analyses (CFA) to create the latent variable, *Organizational Justice*, to use it as an alternative dependent variable for evaluating the convergent and content validity of this measure. By conducting the CFA model separately for each latent measure, *Evaluations of Agency D&I Efforts* and *Orgnaizational Justice*, we seek to create measures in a conservative way so that we are not biasing the results towards showing the same results since these two measures are highly correlated. In other words, we seek to avoid exploiting the correlations between the two measures, which can be done in the joint CFA model.

The latent variable, *Organizational Justice*, is constructed to measure individual employees' perception of organizational justice within the agency for the corresponding year observed in the sample employed for this study (2010–2019). This variable was measured using nine observable indicators from the Federal Employee Viewpoint Survey (FEVS), as follows: **1. Distributive Justice**: (1a) *"Promotions in my work unit are based on merit"; (1b) "Awards in my work unit depend on how well employees perform their jobs"*; (1c) *"Pay raises depend on how well employees perform their jobs"* **2. Procedural Justice**: (2a) *"My performance appraisal is a fair reflection of my performance"*; (2b) *"I can disclose a suspected violation of any law, rule or regulation without fear of reprisal."*; (2c) *"Arbitrary*

action, personal favoritism and coercion for partisan political purposes are not tolerated.”;

(2d) *“Prohibited Personnel Practices (for example, illegally discriminating for or against any*

employee/applicant, obstructing a person's right to compete for employment, knowingly

violating veterans' preference requirements) are not tolerated.”; and **3. Interpersonal**

Justice: (3a) *“My supervisor/team leader listens to what I have to say”*; (3b) *“My*

supervisor/team leader treats me with respect.” As we did in creating the latent measure,

Evaluations of Agency D&I Efforts, survey sample weights were applied in the model.

The model fit was also analyzed by investigating through both the standardized root

mean square (SRMR) and the coefficient of determination (CD) statistics. The ranges of

SRMR and CD for the measurement model in 2010–2019 surveys were from .037 to .041

and from .954 to .979 respectively, indicating a good fit of the model. The results of CFA

also showed the support for the convergent validity by showing high proportions of variance

in survey items between 0.61 and 0.94. (see **Figure C2** below).

Figure C2: Confirmatory Factor Analyses of the Alternative Latent Variable,
Organizational Justice

[2012 FEVS] Organizational Justice
0.86***   0.98***   0.71***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.84***   0.83***   0.70***   D1 D2 D3
0.62***   0.80***   P1 P2 P3 P4
0.75*** 0.82***
0.93***   0.92***   I1 I2
SRMR: 0.039 CD: 0.967

[2013 FEVS] Organizational Justice
0.84***   0.98***   0.71***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.84***   0.83***   0.70***   D1 D2 D3
0.61***   0.81***   P1 P2 P3 P4
0.75*** 0.83***
0.93***   0.91***   I1 I2
SRMR: 0.041 CD: 0.970

[2014 FEVS] Organizational Justice
0.84***   0.98***   0.70***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.84***   0.84***   0.71***   D1 D2 D3
0.61***   0.81***   P1 P2 P3 P4
0.75*** 0.83***
0.94***   0.92***   I1 I2
SRMR: 0.040 CD: 0.967

[2015 FEVS] Organizational Justice
0.85***   0.99***   0.70***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.84***   0.83***   0.71***   D1 D2 D3
0.61***   0.81***   P1 P2 P3 P4
0.76*** 0.83***
0.94***   0.92***   I1 I2
SRMR: 0.040 CD: 0.979

[2016 FEVS] Organizational Justice
0.85***   0.99***   0.71***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.85***   0.84***   0.72***   D1 D2 D3
0.64***   0.82***   P1 P2 P3 P4
0.77*** 0.83***
0.94***   0.92***   I1 I2
SRMR: 0.037 CD: 0.975

[2017 FEVS] Organizational Justice
0.85***   0.99***   0.72***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.85***   0.84***   0.72***   D1 D2 D3
0.64***   0.82***   P1 P2 P3 P4
0.78*** 0.84***
0.94***   0.92***   I1 I2
SRMR: 0.038 CD: 0.974

[2018 FEVS] Organizational Justice
0.85***   0.98***   0.71***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.85***   0.84***   0.73***   D1 D2 D3
0.64***   0.82***   P1 P2 P3 P4
0.77*** 0.84***
0.94***   0.92***   I1 I2
SRMR: 0.040 CD: 0.970

[2019 FEVS] Organizational Justice
0.86***   0.98***   0.71***
Distributive Justice   Procedural Justice   Interpersonal Justice
0.85***   0.84***   0.73***   D1 D2 D3
0.64***   0.83***   P1 P2 P3 P4
0.78*** 0.84***
0.94***   0.92***   I1 I2
SRMR: 0.040 CD: 0.969

APPENDIX D:

Replication Analyses: Alternative (*Absolute*) Authority Differential Measures [Omitting "Privileged Group" Balances for Men and White Employees]

An alternative authority differential measure based solely on the power imbalances of disadvantaged group members (i.e., women and minority agency personnel), excluding composition information for privileged group members (i.e., men and non-minority agency personnel). These measures yield a substantively different take on authority differentials that omits the relative standing of each disadvantaged group vis-à-vis privileged group, and hence, understates the power status for the disadvantaged group when analyzing the behavior of interest in this study (diversity and inclusion) that pervades an entire organization.[1] As a result, these elasticity estimates omit reference-dependent assessments that are critical for evaluating how power imbalances within organizations influence D&I evaluations by agency employees.

Not surprisingly, there are some notable differences between these elasticity estimates and those reported in the manuscript based on a measure that accounts for both privileged group and disadvantaged group power balances within federal agencies. Although the baseline authority differential effects are statistically discernible from zero, the differences from the baseline estimates attenuated compared to those reported in the manuscript based on a full accounting of power imbalances within agencies (e.g., cf. **Figure 1** versus **Figure D1**, cf. **Figure 2** versus **Figure D2**, etc..). This finding is consistent across

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[1] As stated in *Note 12* in the manuscript, the mean values of the alternative women and minority authority differential measures are 0.122 and 0.121, while the corresponding mean for these respective measures defined in Equation (1) are 0.715 and 0.723, respectively. Further, these measures are correlated at 0.315 and 0.371, respectively.

all model specifications. Moreover, the nontrivial and statistically significant differential elasticity estimates for minority respondents (overall, minority men, and minority women) in the manuscript effectively equal to zero and fall far short of attaining statistical significance across all relevant model specifications focusing on heterogenous evaluations by respondents' social identity group. These attenuated authority differential effects are hardly surprising since omitting the status group power imbalances of the broader organization renders a less sanguine judgment of the power held by disadvantaged group members since a referent privileged group containing an abundance of non-supervisory personnel is omitted from making accurate assessments about the entire organization.

FIGURE D1
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Single Social Identity Group)
[Replication Analyses Using Alternative AD Measure]

Alternative AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

Gender   Race/Ethnicity

Squares: Men/Non-Minority Baseline
Hollow Circles: Women/Minority Respondent Baseline Differences

AD: Authority Differentials

FIGURE D2
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)
[Replication Analyses Using Alternative AD Measure]

Gender Alternative AD Effects:
by Respondent Intersectionality Group
(Model 3)

Race/Ethnicity Alternative AD Effects:
by Respondent Intersectionality Group
(Model 4)

Gender   Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials

FIGURE D3
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
[Replication Analyses Using Alternative AD Measure]

Alternative AD Effects:
by Respondent Single Identity Group
(Models 5&6)

Alternative AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials

17

FIGURE D4
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
[Replication Analyses Using Alternative AD Measure]

Alternative AD Effects:
by Respondent Single Identity Group
(Models 5&6)

Alternative AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

APPENDIX E:

Replication Analyses Using *Organizational Justice* Latent Variable as an Alternative Dependent Variable (Convergent & Content Validity)

In **Appendix E**, the manuscript analyses are replicated using an alternative latent measure of the dependent variable, *Organizational Justice*, to demonstrate that the findings reported in the manuscript are not an artifact of the three survey instruments of the latent factor score measure, *Evaluations of Agency D&I Efforts*.[2] While the latent variable, *Evaluations of Agency D&I Efforts*, measures employee evaluations of organizational efforts at fostering D&I, the latent variable *Organizational Justice* measures

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[2] See ***Appendix C: Construction and Estimation of Latent Measures for both Evaluations of Agency D&I Efforts & Organizational Justice Dependent Variables***) for additional details.

FIGURE E1
Relationship Between Authority Differentials and Organizational Justice Employee Evaluations
(By Respondent Single Social Identity Group)

AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

| Gender | Race/Ethnicity |

Squares: Men/Non-Minority Baseline
Hollow Circles: Women/Minority Respondent Baseline Differences

AD: Authority Differentials

FIGURE E2
Relationship Between Authority Differentials and Organizational Justice Employee Evaluations
(By Respondent Intersectional Social Identity Group)

Gender AD Effects: by Respondent Intersectionality Group
(Model 3)

Race/Ethnicity AD Effects: by Respondent Intersectionality Group
(Model 4)

| Gender | Race/Ethnicity |

Squares: Men/Non-Minority Respondents
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials

employee perceptions of overall latent organizational fairness related to distributive, procedural, and interpersonal justice.[3] Organizational Justice is a broader outcome-based concept that encompasses D&I process-based effort evaluations made by U.S. federal agency employees. The results from the *Organizational Justice* measure are substantively identical to the findings reported in the manuscript.

FIGURE E3
Relationship Between Authority Differentials and Organizational Justice Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

| Gender | Race/Ethnicity |

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

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[3] Moon (2017) employs twelve FEVS survey items to account for four dimensions of organizational justice (distributive, procedural, informational, and interpersonal justice climate). Due to model convergence problems in multiple years of the FEVS survey waves, nine survey items are employed that account for three dimensions of this latent concept, thus omitting the informational component.

FIGURE E4
Relationship Between Authority Differentials and Organizational Justice Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

APPENDIX F:

Conditional Authority Differential Effects: Obama versus Trump Administrations

The *conditional* authority differential effects based on presidential administration differences (Obama administration versus Trump administration) are explored in **Appendix F**. **Figures F1−F4** correspond to **Figures 1−4** reported in the manuscript, except that the former set of analyses evaluates administration-based differential effects (Obama – Trump) involving various authority differential elasticity estimates analyzed in the manuscript.

Although Obama−Trump administration differences do not transpire for women authority differential effects with respect to agency employee D&I evaluations appearing in

Figures F1–F4, such authority differential effects do arise in several interesting ways when analyzing the statistical relationship between minority authority differentials and D&I evaluations. When investigating the race/ethnicity of respondents appearing in the right panel of **Figure F1**, it is apparent that minority authority differential effects are 0.054 significantly higher for non-minority respondents during the Obama administration vis-à-vis the Trump administration, while this administration difference is 0.090 significantly higher for minority respondents. Delving into the social identity group of respondents, minority authority differential effects are most acute for non-supervisory personnel classified as non-minority (baseline), minority men, and minority women (**Figure F3:** *left and right panels*). The minority authority differential effects routinely show trivial administration-based differences in relation to D&I evaluations made by supervisory personnel (**Figure F4**), though minority women supervisors do make a statistically discernible stronger association between minority authority differential and D&I evaluations compared to minority men supervisors (0.080, p = 0.032). These empirical patterns suggest that federal employees serving in lower status non-supervisory positions within federal agencies, do view improving the status-group position of minority agency employees as being more beneficial for fostering D&I under the Obama presidency relative to the Trump administration.

FIGURE F1
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Single Social Identity Group)
[Conditional AD Effects Based on Presidential Administration Differences (Obama-Trump)]

AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

Gender | Race/Ethnicity

Squares: Men/Non-Minority
Diamonds: Women/Minority
Hollow Circles: Differences Between Men/Non-Minorty and Women/Minority
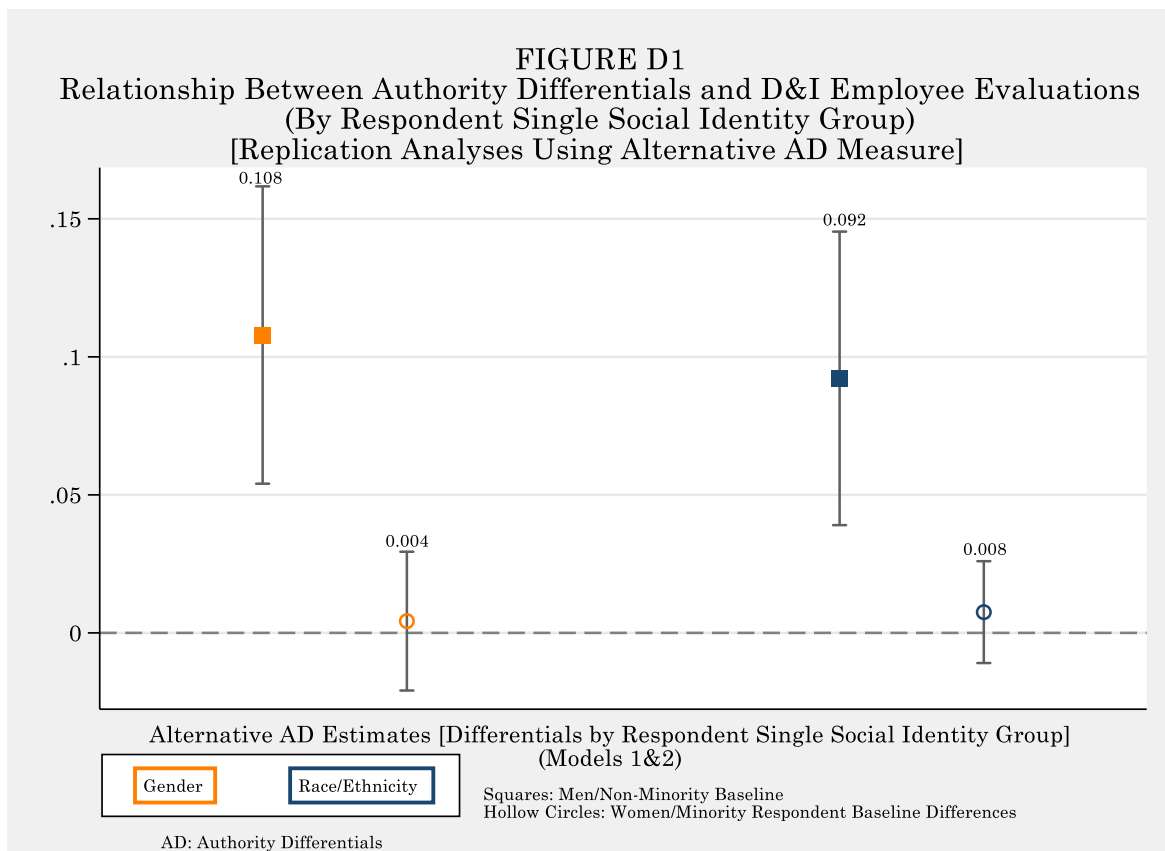
AD: Authority Differentials

FIGURE F2
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)
[Conditional AD Effects Based on Presidential Administration Differences (Obama-Trump)]

Gender AD Effects: by Respondent Intersectionality Group
(Model 3)

Race/Ethnicity AD Effects: by Respondent Intersectionality Group
(Model 4)

Gender | Race/Ethnicity

Squares: Men/Non-Minority Respondents
Circles: Non-Minority Women/Minority Men Respondents
Hollow Circles: Differences between Non-Minority Women/Minority Men and Men/Non-Minority Respondents
Diamonds: Minority Women/Minority Women Respondents
Hollow Diamonds: Differences between Minority Women/Minority Women and Men/Non-Minority Respondents
Hollow Triangles: Differences between Minority Women/Minority Women and Non-Minority Women/Minority Men Respondents
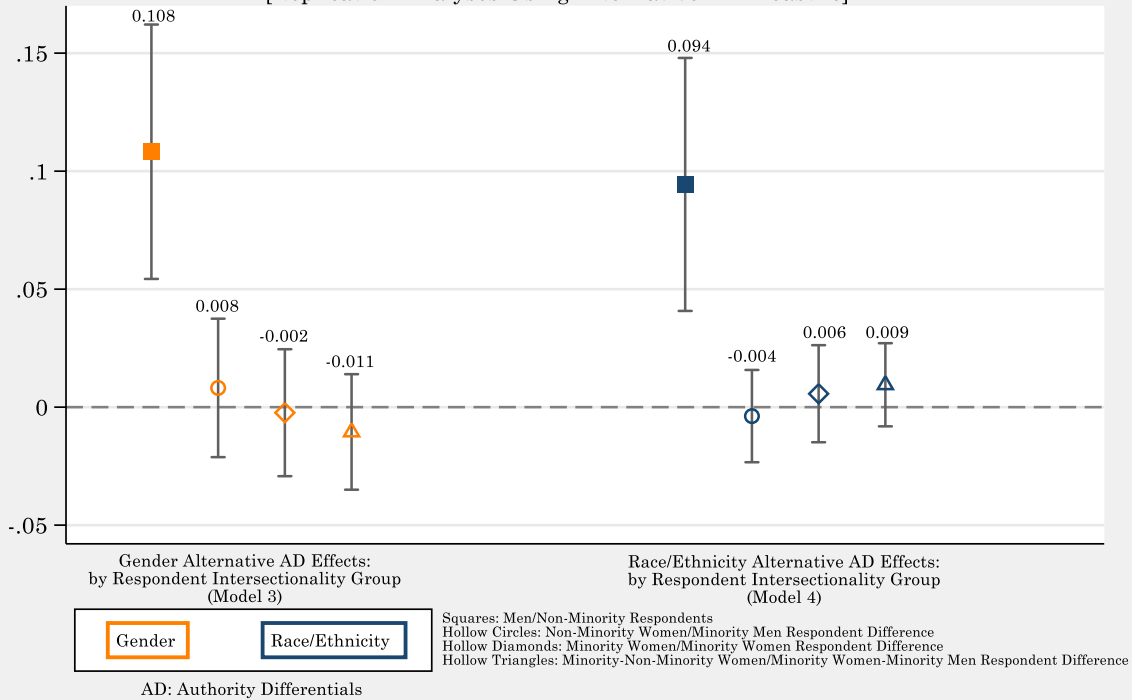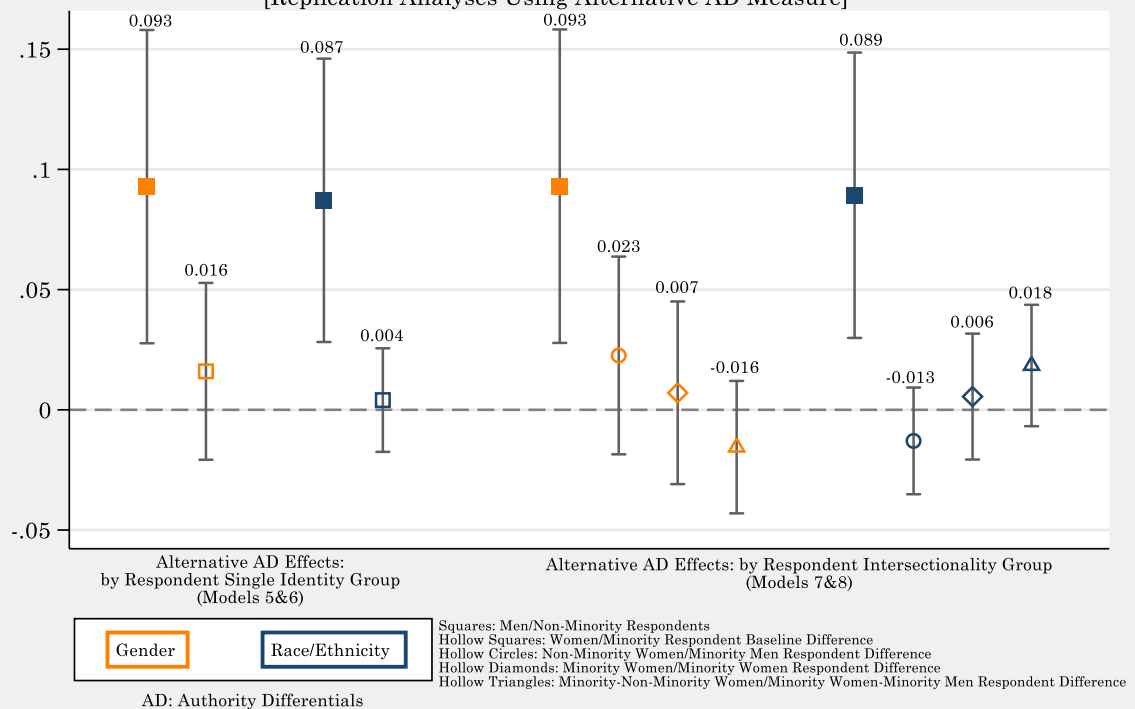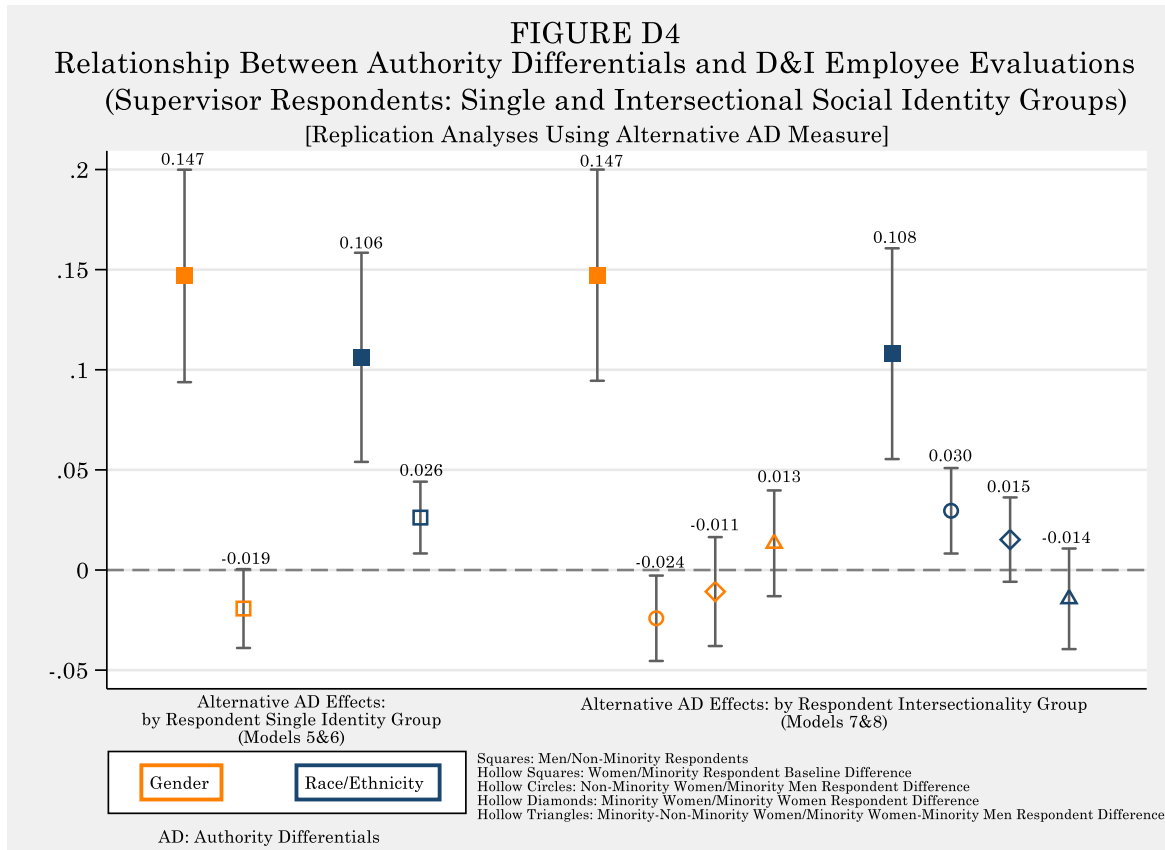
AD: Authority Differentials

FIGURE F3
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
[Conditional AD Effects Based on Presidential Administration Differences (Obama-Trump)]

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Triangles: Women/Minority Respondents
Hollow Squares: Differences Between Men/Non-Minorty and Women/Minority
Circles: Non-Minority Women/Minority Men Respondents
Hollow Circles: Differences between Non-Minority Women/Minority Men and Men/Non-Minority Respondents
Diamonds: Minority Women/Minority Women Respondents
Hollow Diamonds: Differences between Minority Women/Minority Women and Men/Non-Minority Respondents
Hollow Triangles: Differences between Minority Women/Minority Women and Non-Minority Women/Minority Men Respondents

FIGURE F4
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
[Conditional AD Effects Based on Presidential Administration Differences (Obama-Trump)]

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Triangles: Women/Minority Respondents
Hollow Squares: Differences Between Men/Non-Minorty and Women/Minority
Circles: Non-Minority Women/Minority Men Respondents
Hollow Circles: Differences between Non-Minority Women/Minority Men and Men/Non-Minority Respondents
Diamonds: Minority Women/Minority Women Respondents
Hollow Diamonds: Differences between Minority Women/Minority Women and Men/Non-Minority Respondents
Hollow Triangles: Differences between Minority Women/Minority Women and Non-Minority Women/Minority Men Respondents

APPENDIX G:

Additional Sensitivity Analyses

Additional sensitivity checks in **Appendix G** evaluate the sensitivity of the

authority differential model estimates when **(1)** omitting supervisory descriptive

representation as a control covariate [**Figures G1−G4**], and **(2)** omitting 'extreme' above

parity values of relative authority differential measures (e.g., relative authority differential

measure for women > 1 or relative authority differential measure for minorities > 1)

[**Figures G5−G8**].[4] This set of sensitivity analyses is motivated by ensuring that the

reported estimates and inferences are not affected by inclusion/exclusion of the supervisory

descriptive representation covariate, and not driven by extreme-valued observations of our

primary covariate of interest: relative authority differential measures. Specifically,

Figures G1−G4 and **G5−G8** each correspond to **Figures 1−4** appearing in the manuscript.

The former set of sensitivity analyses omitting the ratio of minority supervisors to minority

non-supervisors as a control covariate in each model specification (**Figures G1−G4**) results

in substantively identical results compared to those presented in the manuscript (**Figures

1−4**).

Similarly, the authority differential elasticity estimates which omit 'extreme' above

parity authority differential valued observations graphically displayed in **Figures G5−G8**

are substantively identical to the comparable reported estimates (**Figures 1−4**). It is worth

noting that both minority women and minority men respondents serving in non-supervisory

positions each tend to exhibit slightly more sensitivity in their D&I evaluations in response

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[4] The omission of these above-parity authority differential values constitutes an omission of 43,578

(1.74%) and 52,284 (2.09%) of observations in the gender and racial/ethnic minority models,

respectively.

to minority authority differentials within their agency when these extreme valued are

omitted from the sample of observations.

FIGURE G1
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Single Social Identity Group)

[Omitting Supervisory Descriptive Representation Measure as a Covariate]

AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

Gender | Race/Ethnicity

Squares: Men/Non-Minority Baseline
Hollow Circles: Women/Minority Respondent Baseline Differences

AD: Authority Differentials

FIGURE G2
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)

[Omitting Supervisory Descriptive Representation Measure as a Covariate]

Gender AD Effects: by Respondent Intersectionality Group
(Model 3)

Race/Ethnicity AD Effects: by Respondent Intersectionality Group
(Model 4)

Gender | Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials

26

FIGURE G3
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
[Omitting Supervisory Descriptive Representation Measure as a Covariate]

AD Effects: by Respondent Single Identity Group (Models 5&6)

AD Effects: by Respondent Intersectionality Group (Models 7&8)

Gender   Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference
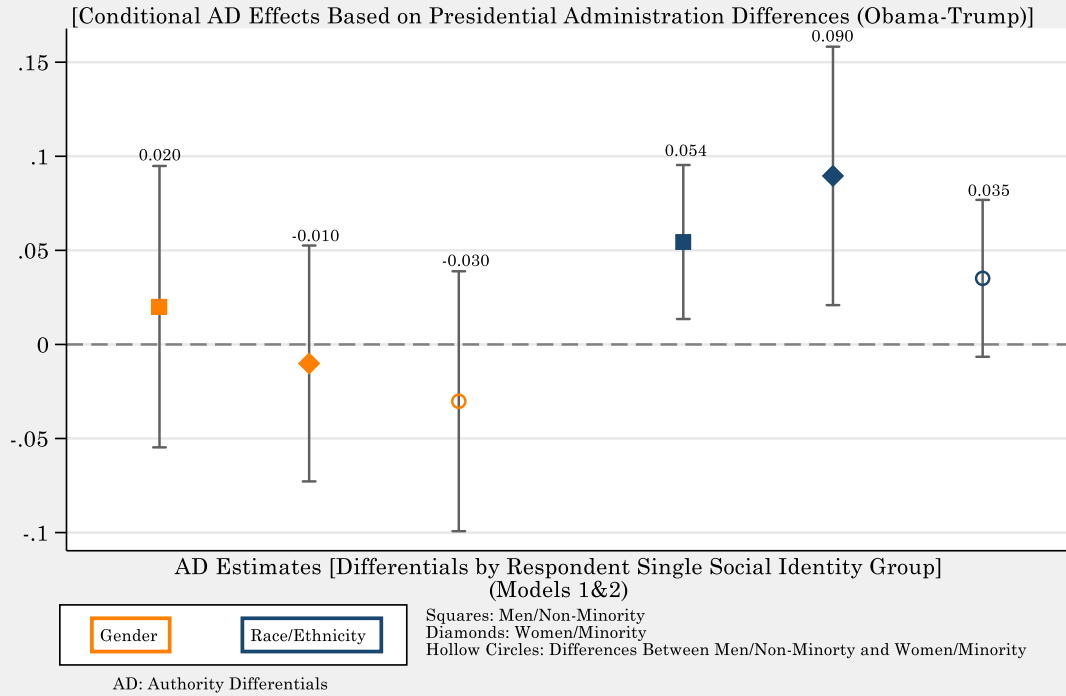
AD: Authority Differentials
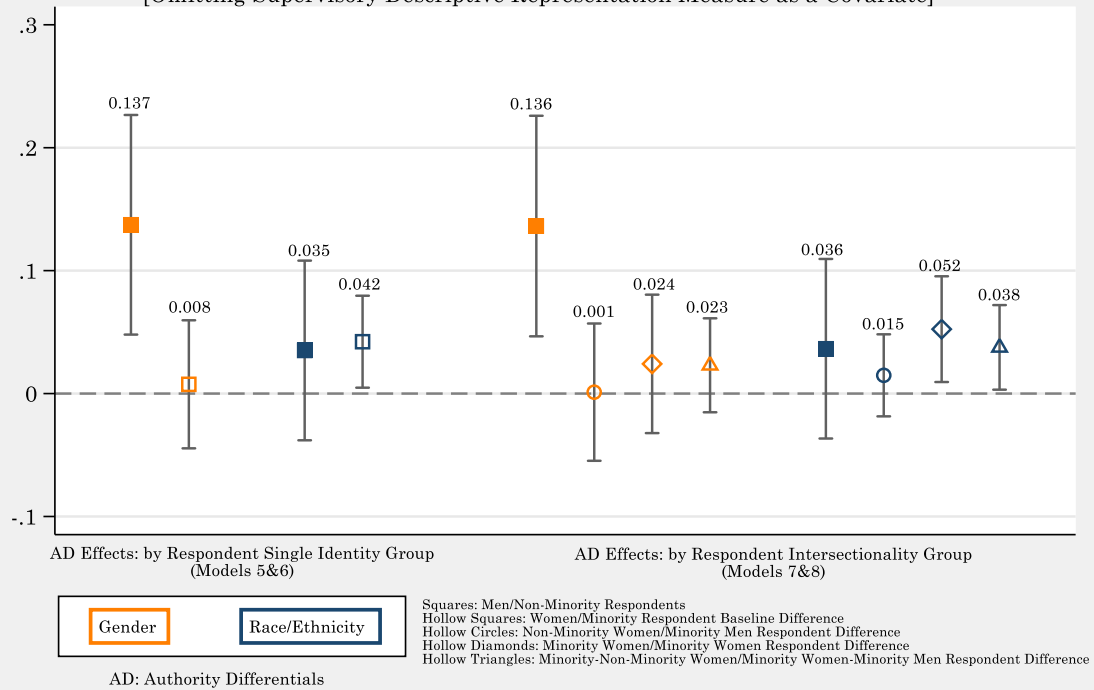
FIGURE G4
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
[Omitting Supervisory Descriptive Representation Measure as a Covariate]

AD Effects: by Respondent Single Identity Group (Models 5&6)

AD Effects: by Respondent Intersectionality Group (Models 7&8)

Gender   Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials
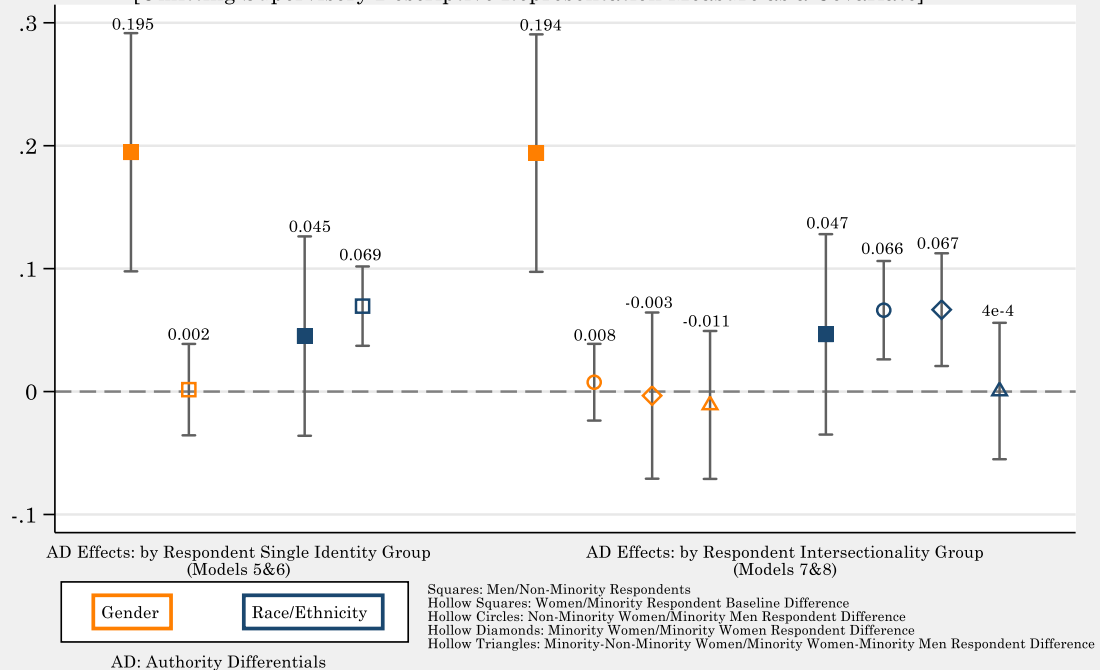
FIGURE G5
Relationship Between Authority Differentials and D&I Employee Evaluations
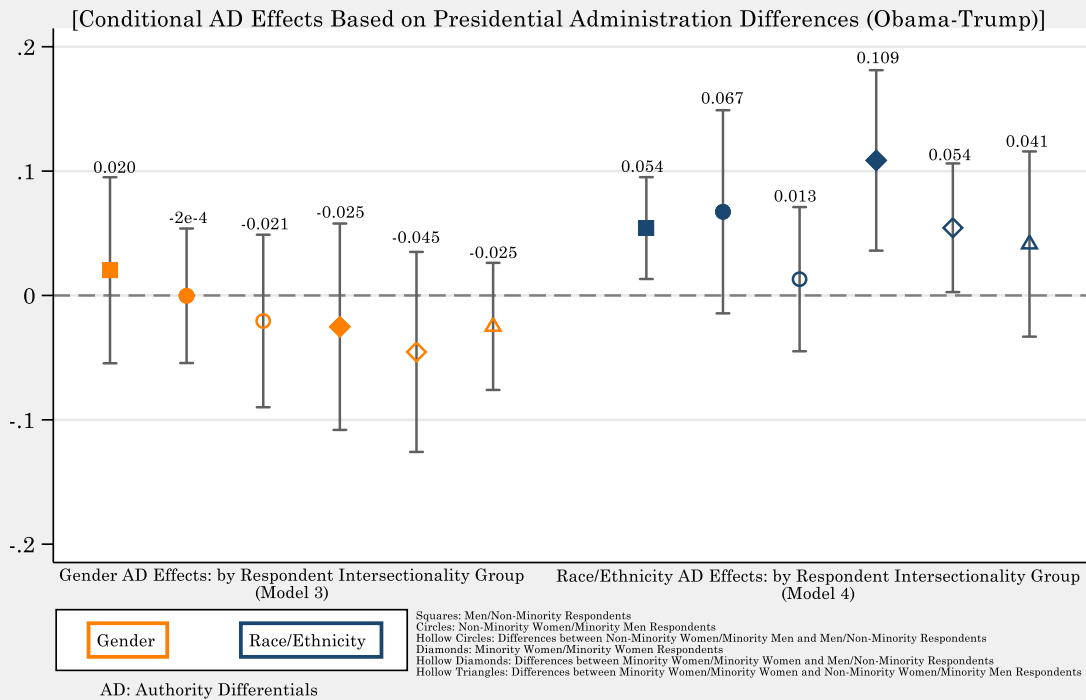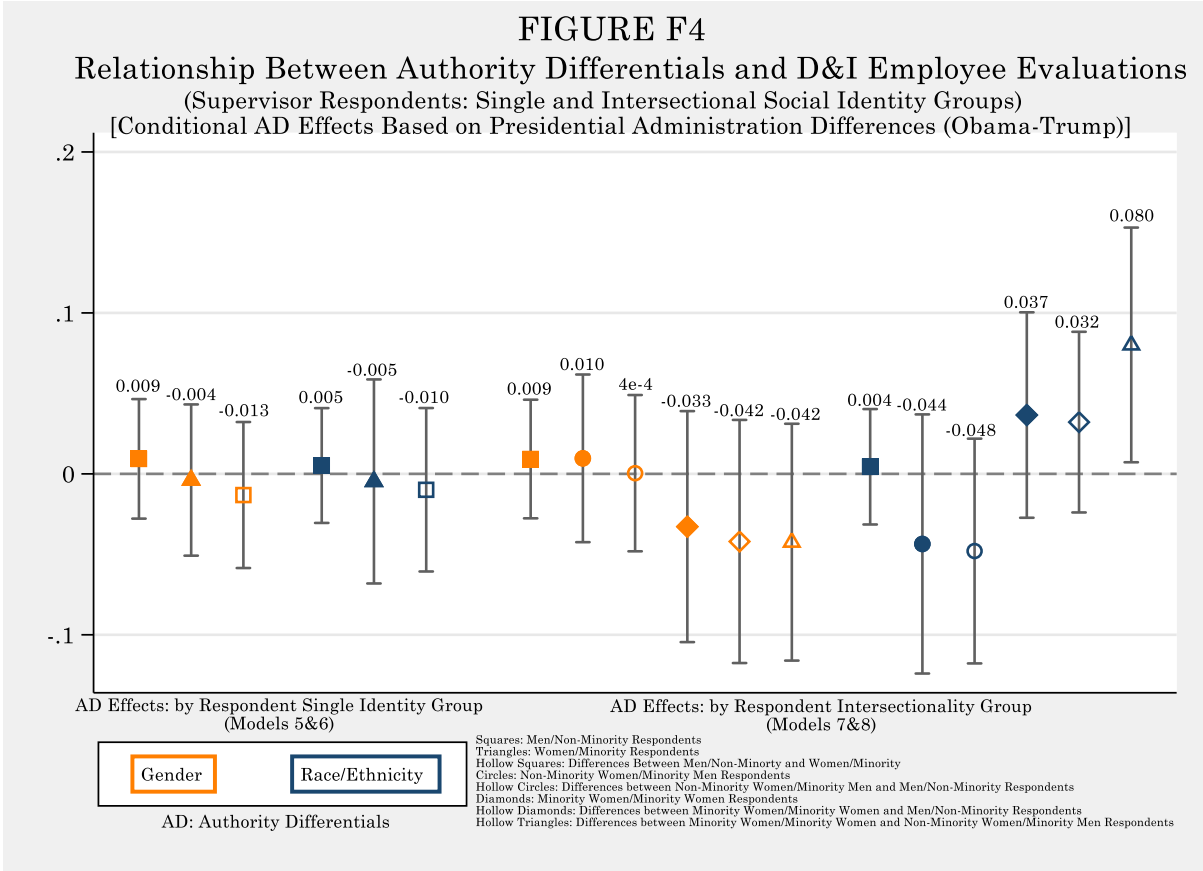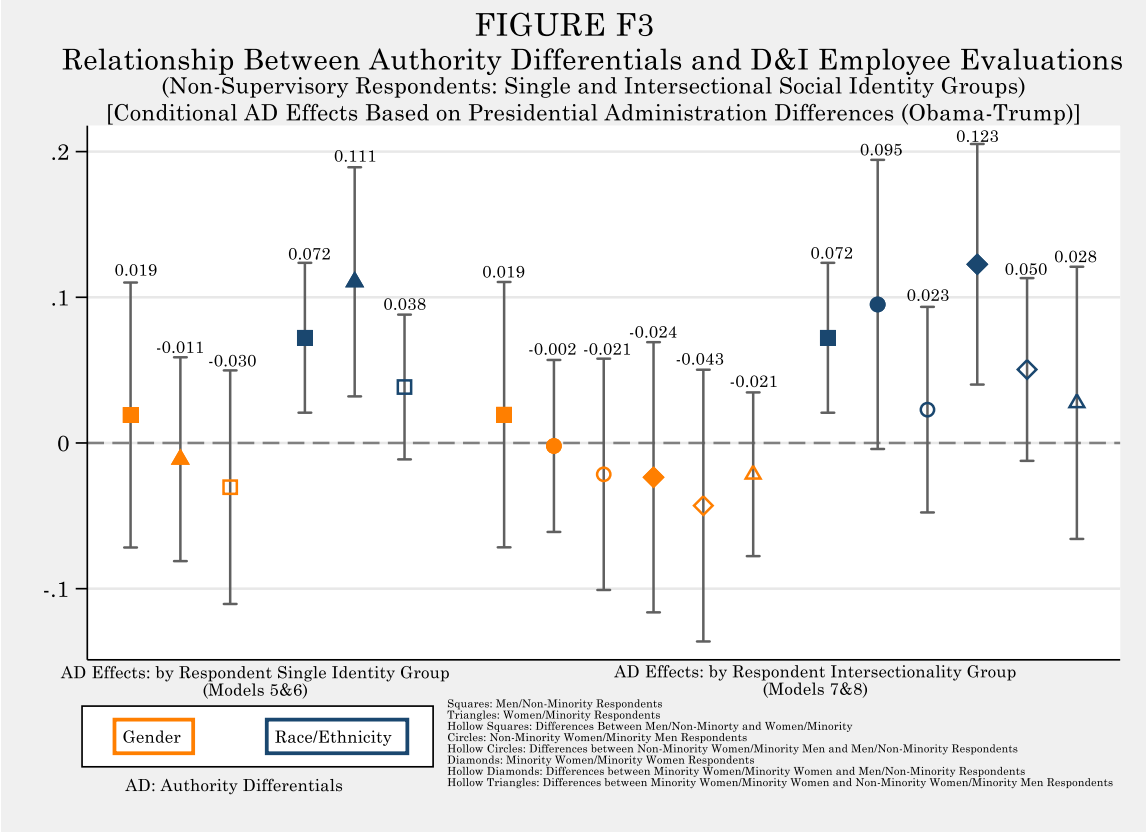### (By Respondent Single Social Identity Group)
[Omitting 'Extreme' above Parity Values of AD Measure]

AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

| Gender | Race/Ethnicity |

Squares: Men/Non-Minority Baseline
Hollow Circles: Women/Minority Respondent Baseline Differences

AD: Authority Differentials
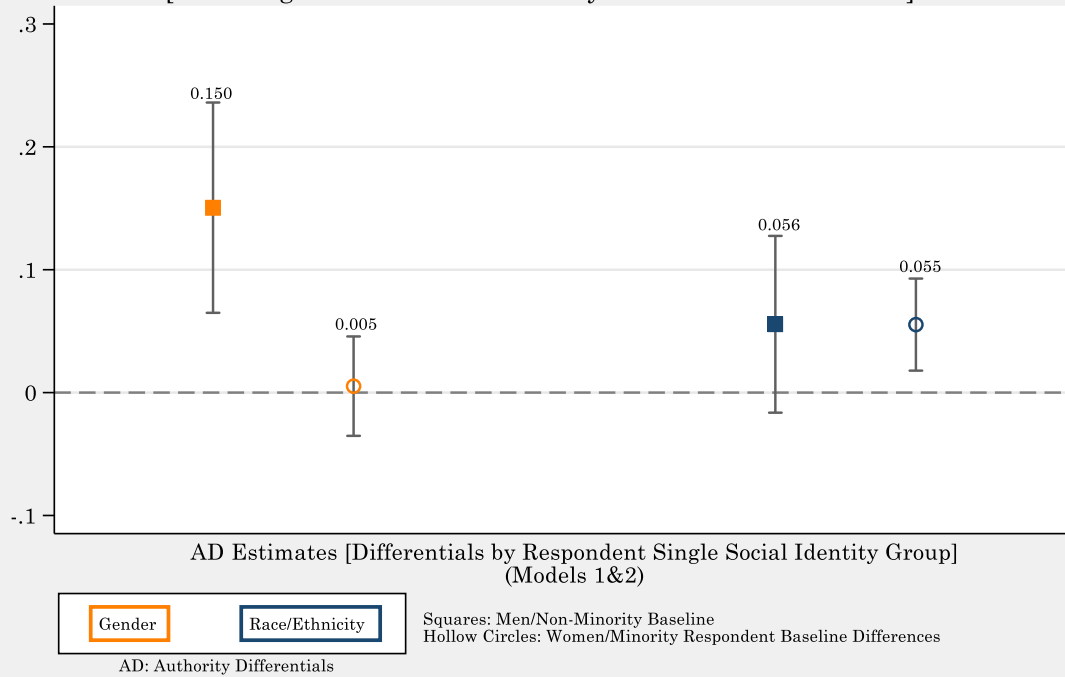
FIGURE G6
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)
[Omitting 'Extreme' above Parity Values of AD Measure]

Gender AD Effects: by Respondent Intersectionality Group
(Model 3)

Race/Ethnicity AD Effects: by Respondent Intersectionality Group
(Model 4)

| Gender | Race/Ethnicity |

Squares: Men/Non-Minority Respondents
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials
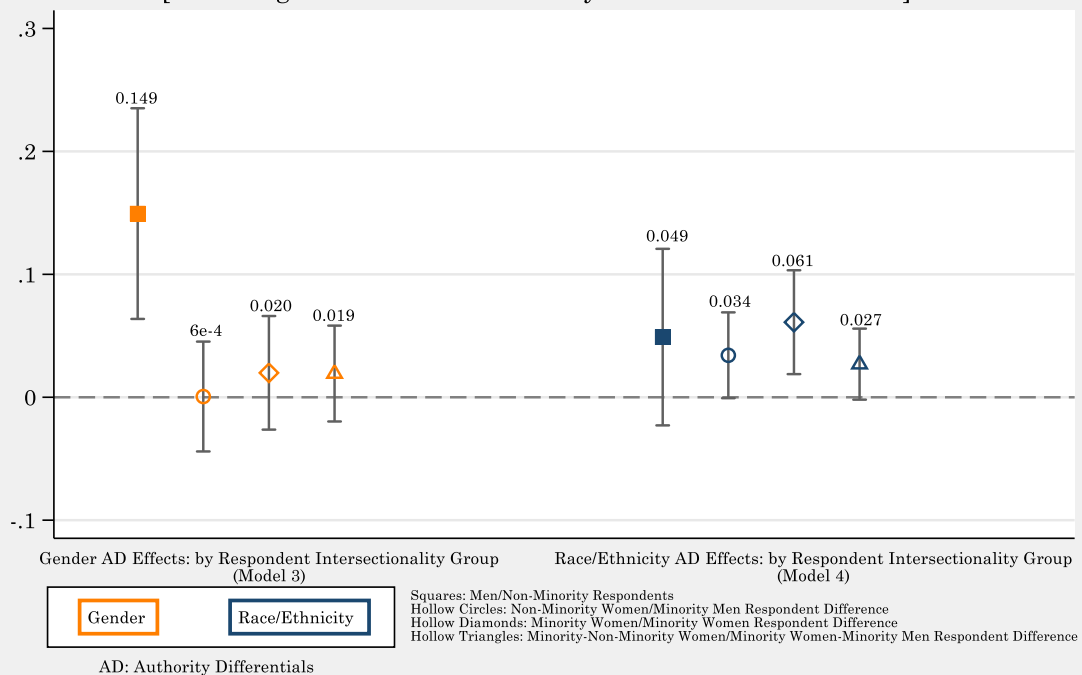
FIGURE G7
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
[Omitting 'Extreme' above Parity Values of AD Measure]

AD Effects: by Respondent Single Identity Group (Models 5&6)
AD Effects: by Respondent Intersectionality Group (Models 7&8)

Gender
Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference
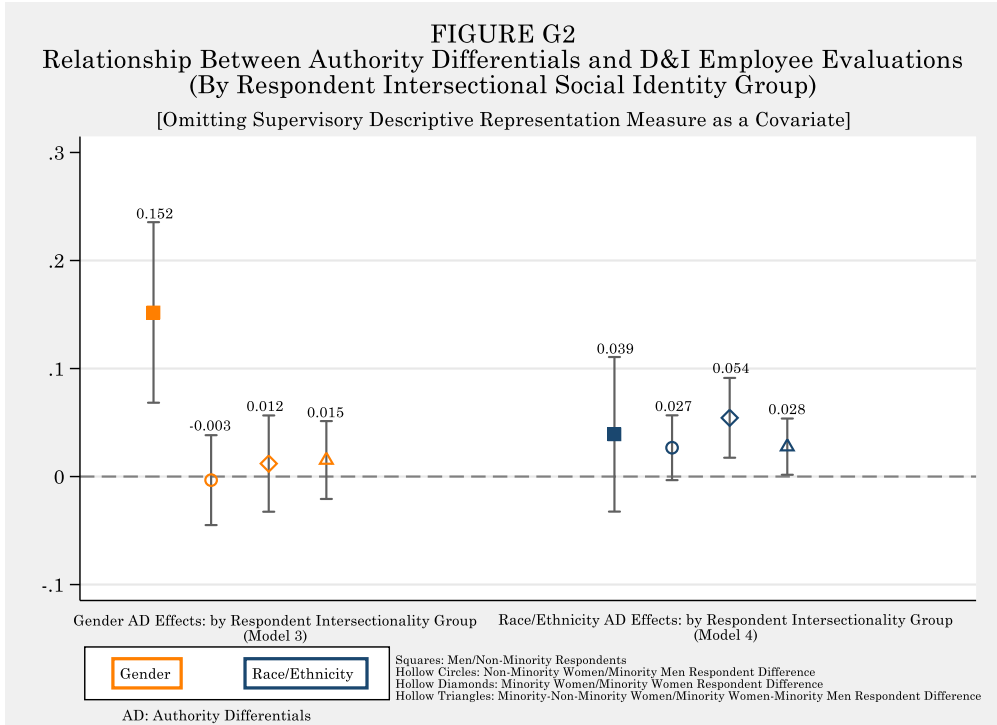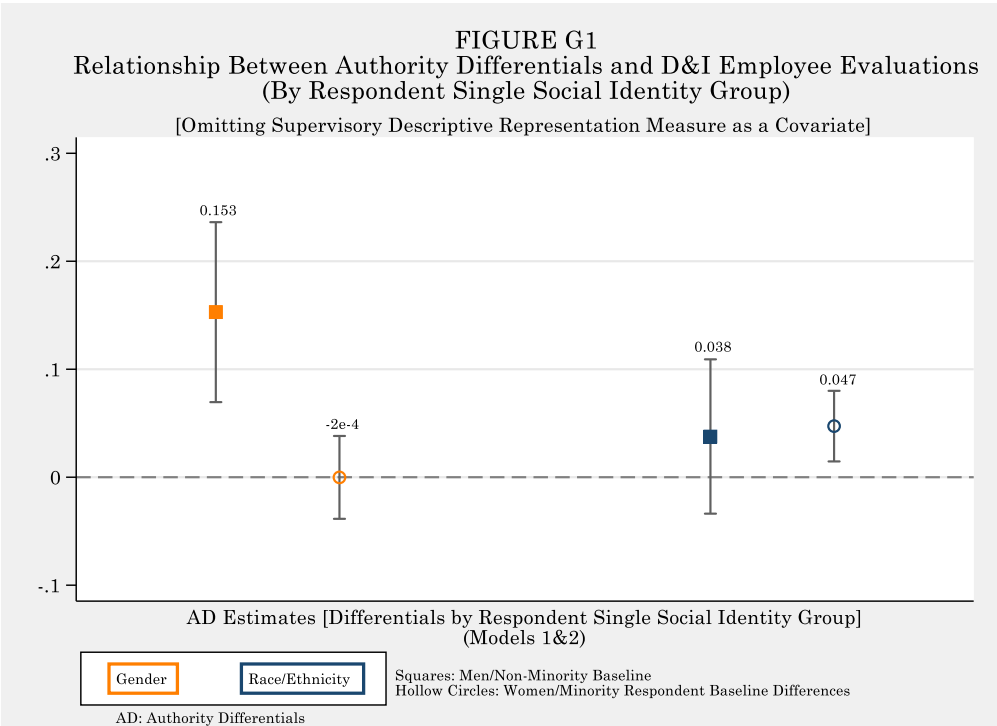
AD: Authority Differentials
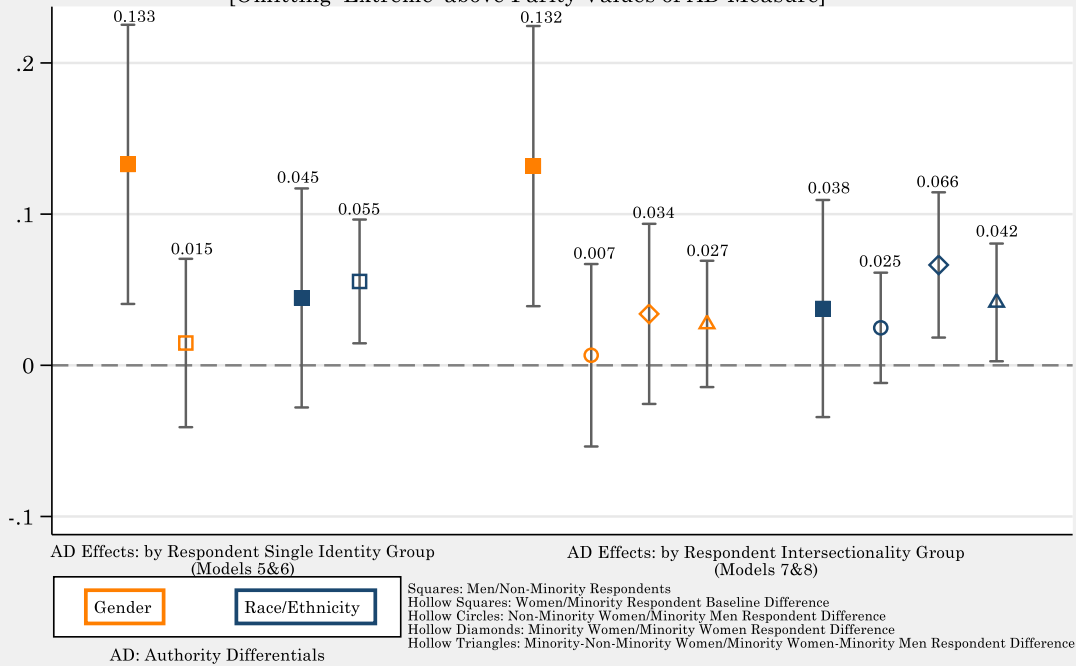
FIGURE G8
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
[Omitting 'Extreme' above Parity Values of AD Measure]

AD Effects: by Respondent Single Identity Group (Models 5&6)
AD Effects: by Respondent Intersectionality Group (Models 7&8)

Gender
Race/Ethnicity

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials

29
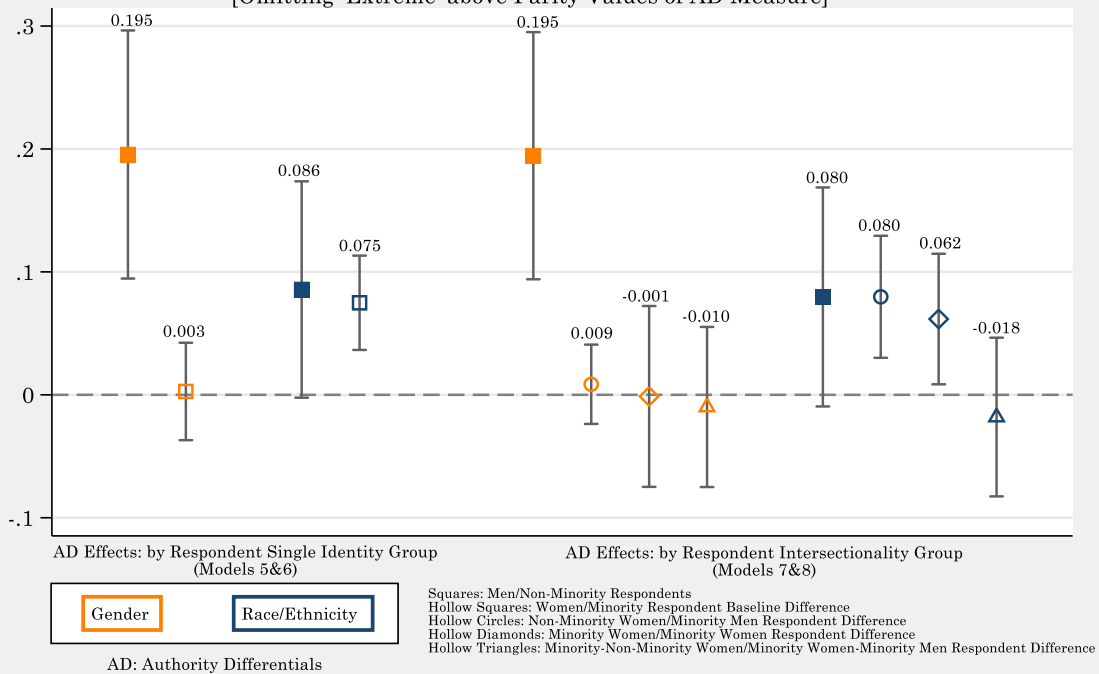
APPENDIX H:

Conditional Authority Differential Effects:
Agency Head Gender (Women) & Race/Ethnicity (Minority)

We further evaluate heterogeneous conditional authority differential effects across social identity status (based on gender and racial/ethnic minority status) of the agency head. These models interact the agency head's gender or race/ethnicity with respect to the gender and race/ethnicity authority differential in each of the model specifications reported in the manuscript (see **Figures H1–H4**, cf. **Figures 1–4**).

Interestingly, women employees display a weaker statistical association between women authority differential and D&I evaluations (see **Figure H1**: *center panel*) by about 0.066 (p = 0.010) when women agency heads are leading an agency compared to men agency heads. Delving further into these data reveals that much of this unexpected effect is derived from minority women employees (**Figure H2**: *left panel*) that can be primarily attributed to those serving in non-supervisory positions (**Figure H3**: *left* and *center panels*). One possible explanation for this pattern might be that women employees are more sensitive to multiple identities (Fernandez, Malatesta, and Smith 2013: 117), and thus especially for minority employees who are in non-supervisory positions, the gender identity of women employees does not affect their organization's D&I evaluations much.

The statistical relationship between minority authority differentials and minority employee D&I evaluations are stronger when a minority is serving as the top agency official compared to when this is not the case (**Figures H1 & H2:** right panel). These effects are most acute and estimated with higher precision for non-minority employees serving in non-supervisory positions (**Figure H3**: *left panel*), especially for minority women non-supervisors (**Figure H3**: *right panel*). These findings suggest that the existence of minority agency heads offers a premium for minority employees when assessing the importance of

improving the disadvantaged group's balance of power within these organizations. These findings confirm Grissom and Keiser's (2011) finding that the minority presence at the supervisor level can positively affect minority employees' perceived work environment, and thus in our study, the existence of minority agency heads provides minority employees with additional favorable evidence to evaluate agencies' improving D&I efforts.

FIGURE H1
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Single Social Identity Group)
[Conditional AD Effects Based on Social Identity Status of Agency Head]

AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

Gender   Race/Ethnicity   Squares: Men/Non-Minority
Diamonds: Women/Minority
Hollow Circles: Differences Between Men/Non-Minorty and Women/Minority

AD: Authority Differentials

FIGURE H2
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)
[Conditional AD Effects Based on Social Identity Status of Agency Head]

Gender AD Effects: by Respondent Intersectionality Group
(Model 3)

Race/Ethnicity AD Effects: by Respondent Intersectionality Group
(Model 4)

Squares: Men/Non-Minority Respondents
Circles: Non-Minority Women/Minority Men Respondents
Hollow Circles: Differences between Non-Minority Women/Minority Men and Men/Non-Minority Respondents
Diamonds: Minority Women/Minority Women Respondents
Hollow Diamonds: Differences between Minority Women/Minority Women and Men/Non-Minority Respondents
Hollow Triangles: Differences between Minority Women/Minority Women and Non-Minority Women/Minority Men Respondents

Gender | Race/Ethnicity

AD: Authority Differentials

FIGURE H3
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
[Conditional AD Effects Based on Social Identity Status of Agency Head]

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Squares: Men/Non-Minority Respondents
Triangles: Women/Minority Respondents
Hollow Squares: Differences Between Men/Non-Minority and Women/Minority
Circles: Non-Minority Women/Minority Men Respondents
Hollow Circles: Differences between Non-Minority Women/Minority Men and Men/Non-Minority Respondents
Diamonds: Minority Women/Minority Women Respondents
Hollow Diamonds: Differences between Minority Women/Minority Women and Men/Non-Minority Respondents
Hollow Triangles: Differences between Minority Women/Minority Women and Non-Minority Women/Minority Men Respondents

Gender | Race/Ethnicity
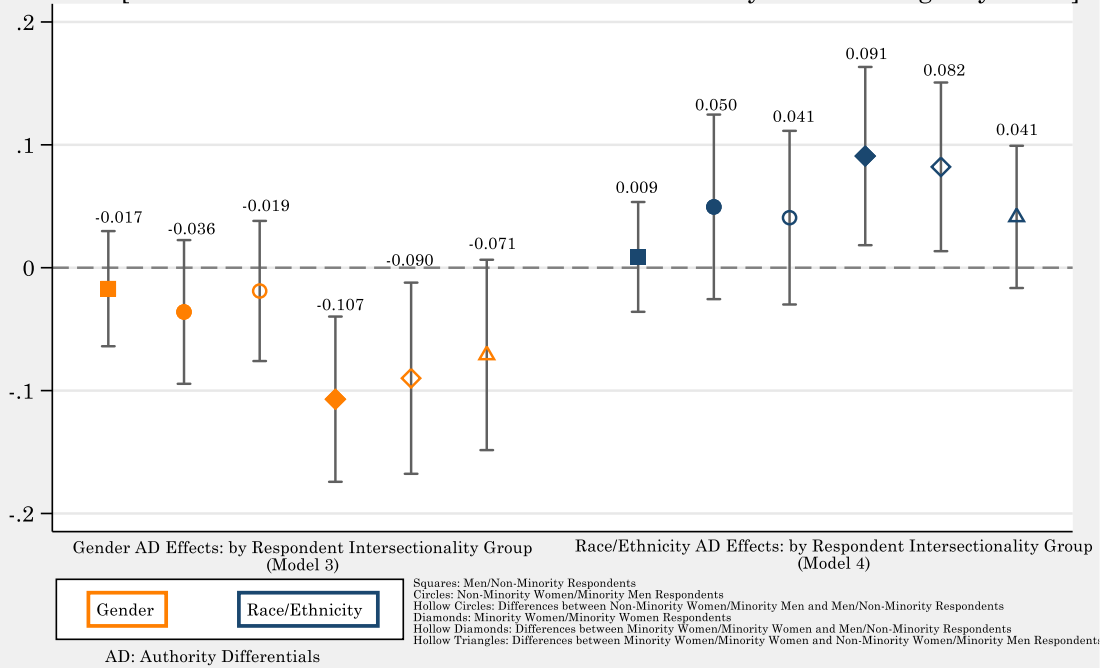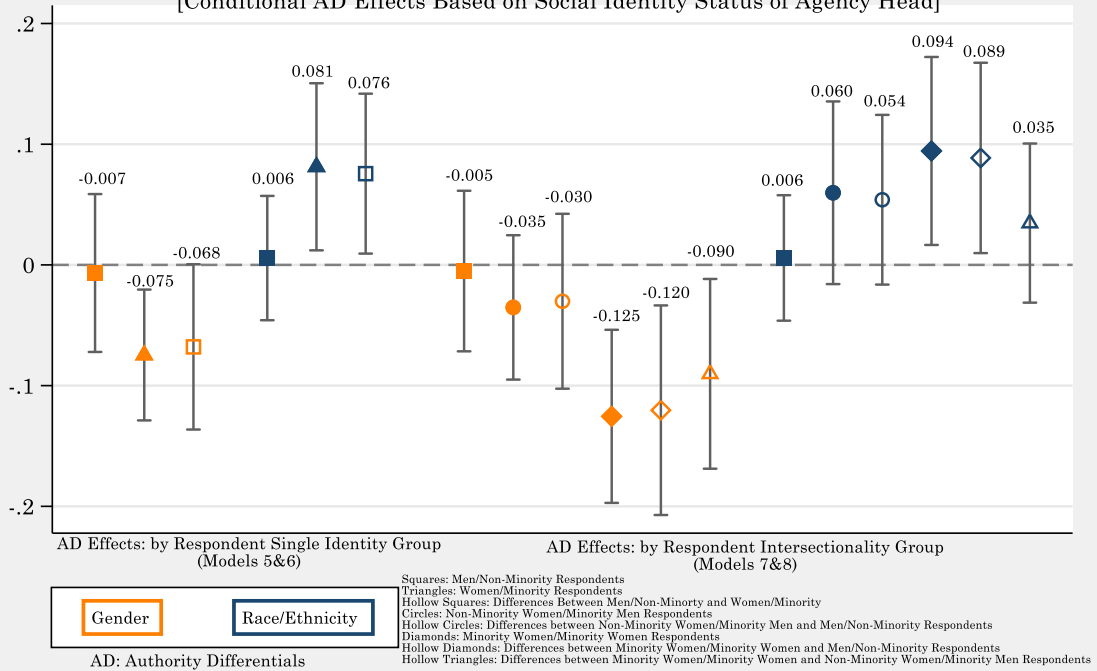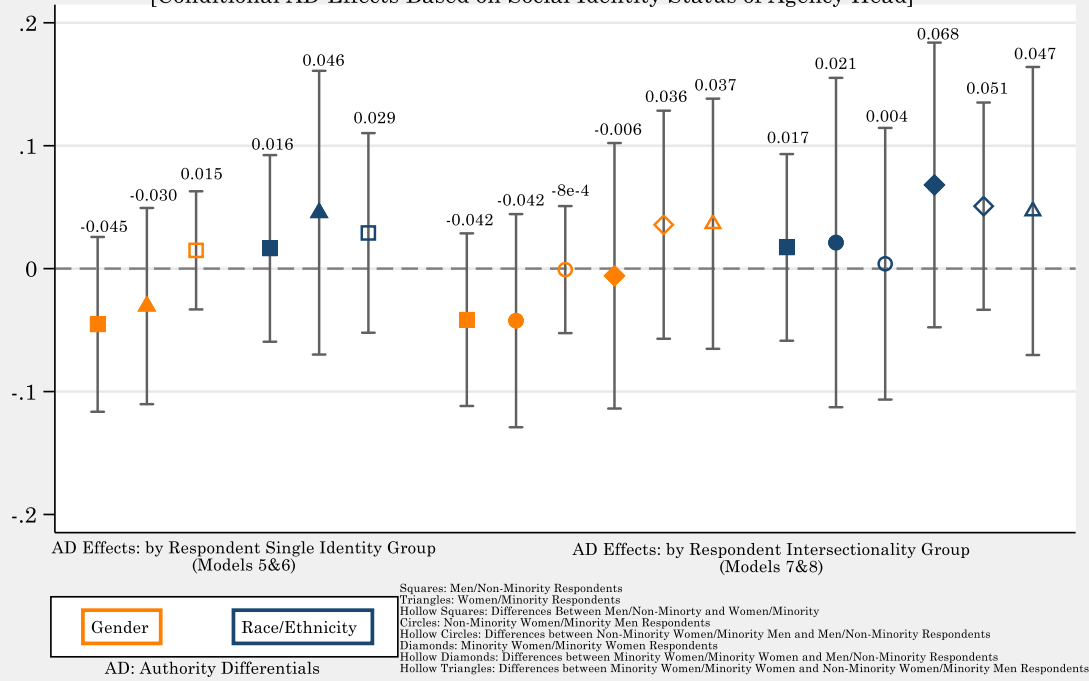
AD: Authority Differentials

32

FIGURE H4
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
[Conditional AD Effects Based on Social Identity Status of Agency Head]

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Triangles: Women/Minority Respondents
Hollow Squares: Differences Between Men/Non-Minorty and Women/Minority
Circles: Non-Minority Women/Minority Men Respondents
Hollow Circles: Differences between Non-Minority Women/Minority Men and Men/Non-Minority Respondents
Diamonds: Minority Women/Minority Women Respondents
Hollow Diamonds: Differences between Minority Women/Minority Women and Men/Non-Minority Respondents
Hollow Triangles: Differences between Minority Women/Minority Women and Non-Minority Women/Minority Men Respondents

APPENDIX I:

Sensitivity of Authority Differential Estimates When Controlling for Social Identity Group Contagion Effects in the Statistical Models

One potential source of bias in the reported estimates can be attributed to

confounding relating to cross-social identity group respondent's evaluations of agency

efforts at fostering D&I within the organizational environment. That is, the evaluations by

gender of respondents might be affected by authority differentials involving minority and

non-minority agency personnel composition, while evaluations by race/ethnicity of

respondents might be affected by authority differentials involving women and men agency

personnel composition. To account for such potential confounding, an additional set of

sensitivity analyses are performed to evaluate the robustness of the authority differential

effects by respondent's social identity group reported in the manuscript. **Figures I1**, **I2**, **I3**,

and **I4** represent the analogous model estimates respectively appearing in **Figures 1** (**Models 1** & **2** only), **2** (**Models 3** & **4**), **3** (**Models 5−8**), **and 4** (**Models 5−8**). The log-elasticity authority differential estimates from these alternative model specifications are substantively identical to those presented in the manuscript which do not account for cross-social identity group contagion effects in every instance. The only instance where a minor difference occurs involves the difference between the minority women non-supervisor and minority men non-supervisor elasticity estimate differential in **Figure I3**. In this instance, the differential estimate is both lower and fails to attain statistical significance at conventional levels ($\beta_{\text{Minority Women Non-Supervisor} - \text{Minority Men Non-Supervisor}}$ elasticity estimate differential = 0.030, p = 0.078) compared to the comparable estimates reported in **Figure 3** ($\beta_{\text{Minority Women Non-Supervisor} - \text{Minority Men Non-Supervisor}}$ elasticity estimate differential = 0.037, p = 0.033).

FIGURE I1
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Single Social Identity Group)
[Sensitivity of AD Estimates When Controlling for Social Identitiy Group Spillover Effects]

AD Estimates [Differentials by Respondent Single Social Identity Group]
(Models 1&2)

Squares: Men/Non-Minority Baseline
Hollow Circles: Women/Minority Respondent Baseline Differences

Gender   Race/Ethnicity
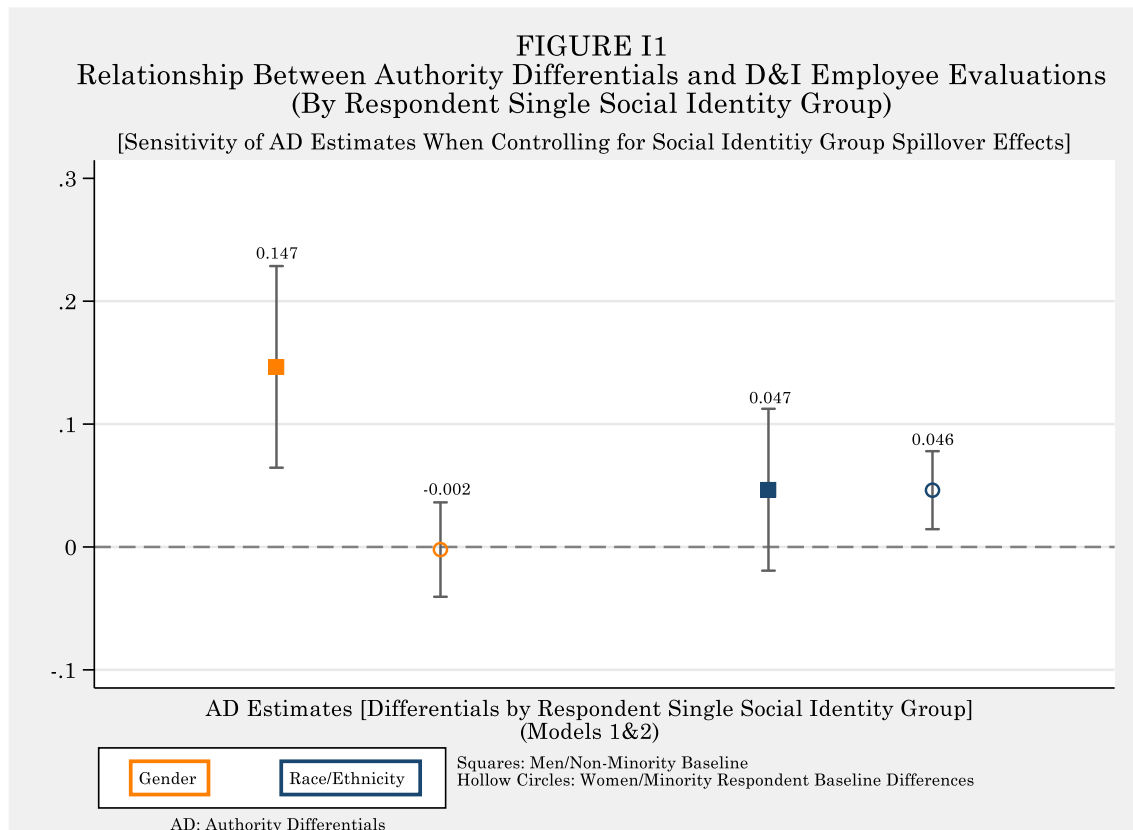
AD: Authority Differentials

FIGURE I2
Relationship Between Authority Differentials and D&I Employee Evaluations
(By Respondent Intersectional Social Identity Group)
[Sensitivity of AD Estimates When Controlling for Social Identity Group Spillover Effects]

Gender AD Effects: by Respondent Intersectionality Group (Model 3)

Race/Ethnicity AD Effects: by Respondent Intersectionality Group (Model 4)

Squares: Men/Non-Minority Respondents
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference
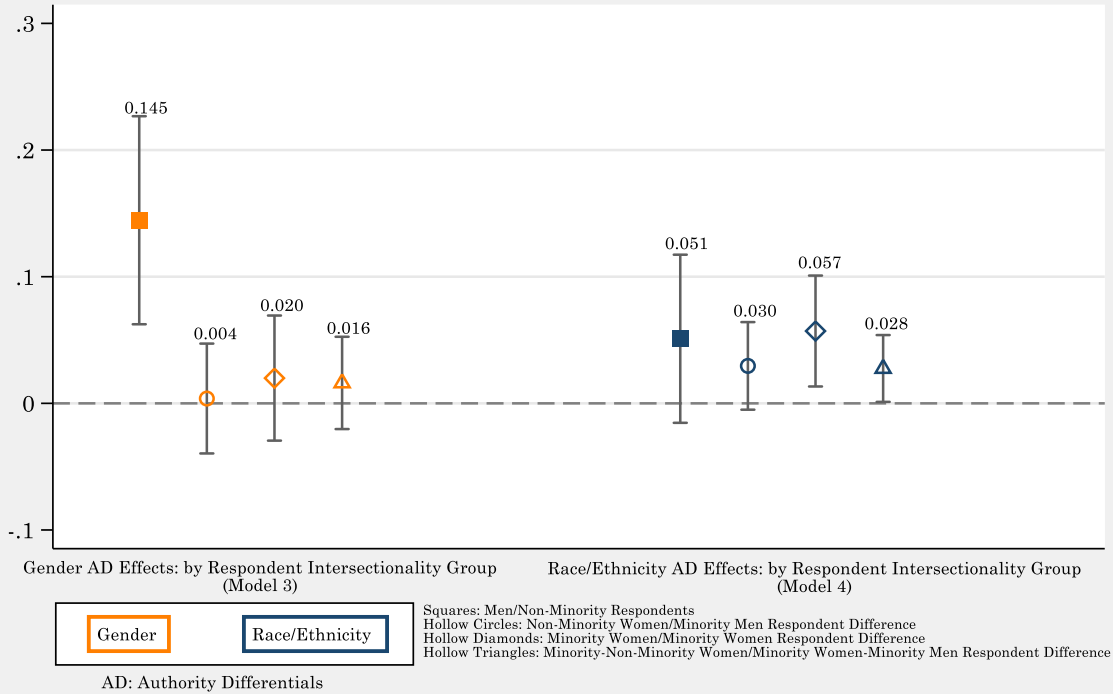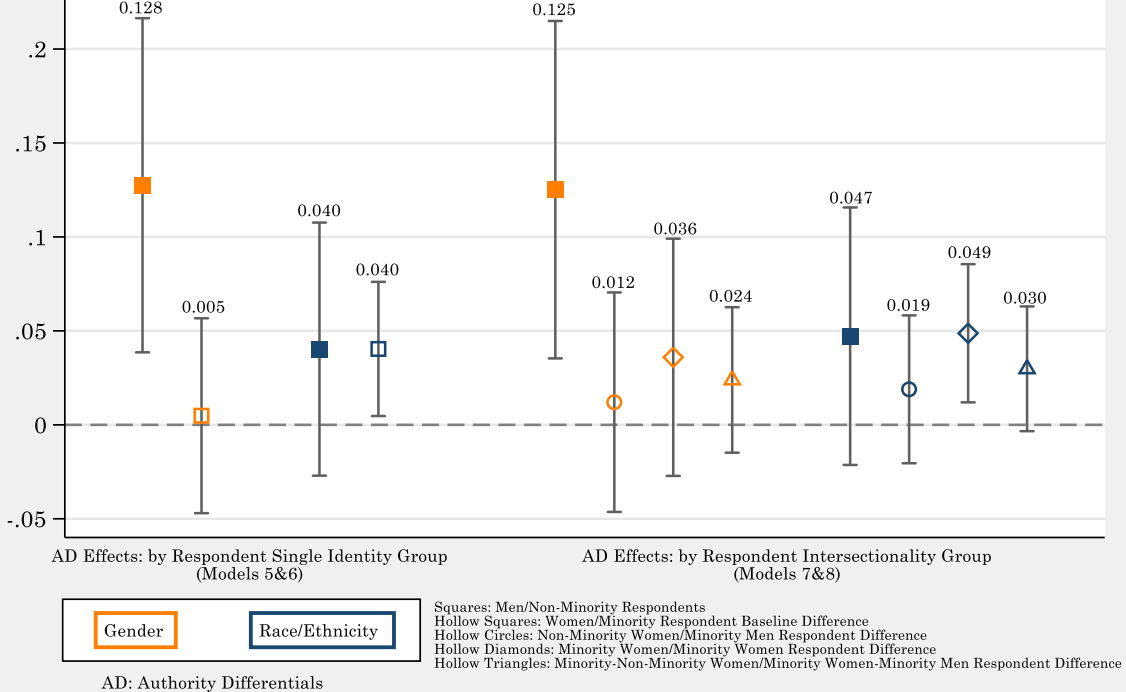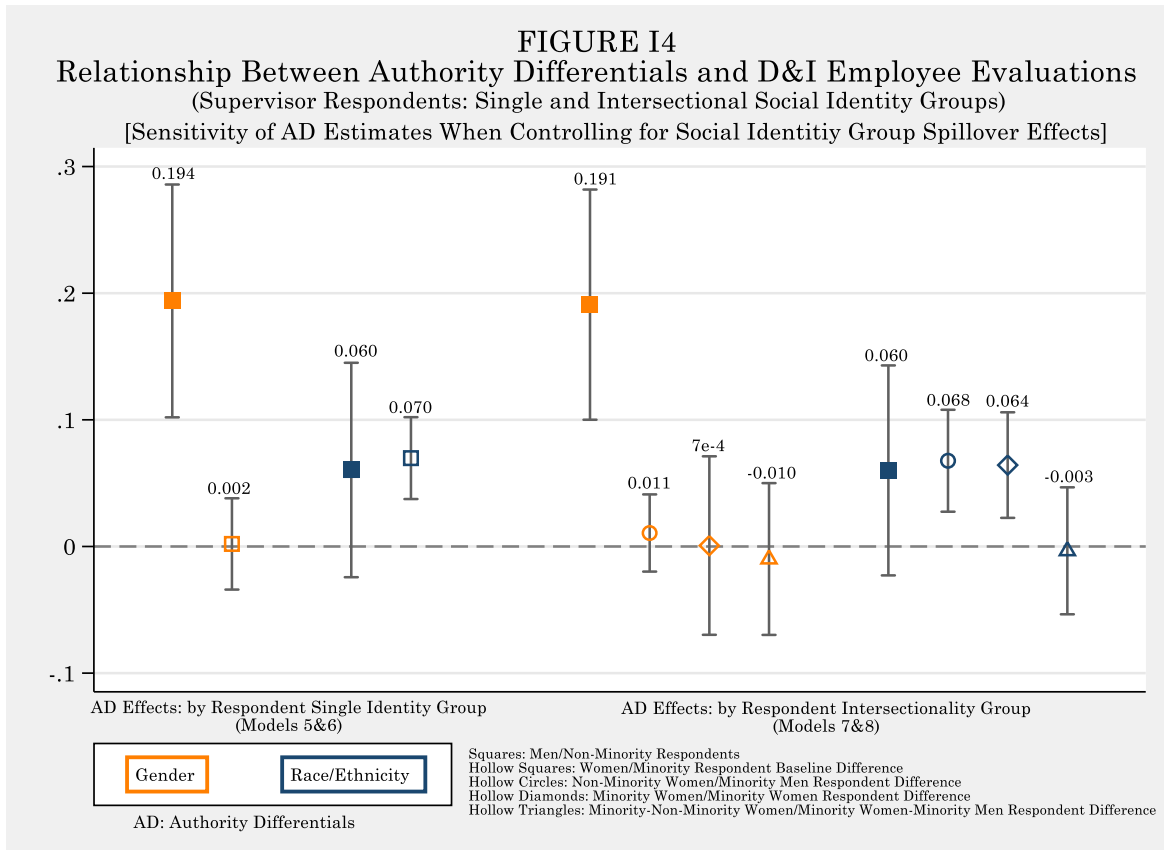
AD: Authority Differentials

FIGURE I3
Relationship Between Authority Differentials and D&I Employee Evaluations
(Non-Supervisory Respondents: Single and Intersectional Social Identity Groups)
[Sensitivity of AD Estimates When Controlling for Social Identity Group Spillover Effects]

AD Effects: by Respondent Single Identity Group (Models 5&6)

AD Effects: by Respondent Intersectionality Group (Models 7&8)

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

AD: Authority Differentials

FIGURE I4
Relationship Between Authority Differentials and D&I Employee Evaluations
(Supervisor Respondents: Single and Intersectional Social Identity Groups)
[Sensitivity of AD Estimates When Controlling for Social Identitiy Group Spillover Effects]

AD Effects: by Respondent Single Identity Group
(Models 5&6)

AD Effects: by Respondent Intersectionality Group
(Models 7&8)

Gender   Race/Ethnicity

AD: Authority Differentials

Squares: Men/Non-Minority Respondents
Hollow Squares: Women/Minority Respondent Baseline Difference
Hollow Circles: Non-Minority Women/Minority Men Respondent Difference
Hollow Diamonds: Minority Women/Minority Women Respondent Difference
Hollow Triangles: Minority-Non-Minority Women/Minority Women-Minority Men Respondent Difference

APPENDIX J:

Evaluating the Latent Diversity & Inclusion Variable for Potential
Social Desirability Bias Reflected in Employee D&I Evaluations

The potential social desirability bias reflected in employee D&I evaluations is

explored in **Appendix J**. Social desirability bias refers to the tendency of individuals to

express their views that are consistent with prevailing social (organizational) norms but not

to express socially undesirable views (Zerbe and Paulhus 1987). For this reason, Nederhof

(1985) warns that social desirability bias can negatively affect the validity of survey

research findings. Although in most cases it is not possible to compare what individuals

report in surveys and what they really think, one feasible way of investigating this bias is

to compare their reported views that may be affected by social desirability bias with others'

reported views that may be hardly affected by the bias. Thus, in the empirical design, social

desirability bias may work in a way that disadvantaged group respondents (women or

racial/ethnic minority respondents) are more likely to have a similar or even positive view

of agency D&I efforts than privileged group respondents (men or racial/ethnic non-minority

respondents).

Table J1 displays the pairwise mean differences in employee evaluations of D&I

between privileged group versus disadvantaged group respondents. Contrary to the

expectation of social desirability bias, the test results reveal that the mean differences are

all below zero, meaning that disadvantaged group respondents, both women and

racial/ethnic minority respondents, have more negative views on their agencies' D&I efforts

than privileged group respondents. These results are consistent regardless of whether

respondents are in different organizational environments with various levels of authority

differentials (*Low*, *Moderate*, and *High*), as well as whether they are in non-supervisory

positions or in supervisory positions. In sum, the findings reject the notion that the latent

outcome measure of agency D&I efforts employed in this study exhibits social desirability

bias.

TABLE J1

**Pairwise Mean Differences in Employee Evaluations of D&I Between Privileged Group
versus Disadvantaged Group Respondents (Social Desirability Bias Hypothesis:**
$$\left[\bar{X}_{DISADVANTAGED} - \bar{X}_{PRIVILEGED} \geq 0 \right])$$

	All Respondents	Non–Supervisory Respondents	Supervisory Respondents
Low Women Authority Differential	−0.066 (−56.869) [0.0000]	−0.056 (−39.687) [0.0000]	−0.044 (−22.565) [0.0000]
Moderate Women Authority Differential	−0.052 (−43.715) [0.0000]	−0.043 (−29.971) [0.000]	−0.036 (−18.122) [0.0000]
High Women Authority Differential	−0.042 (−36.238) [0.000]	−0.038 (−27.464) [0.0000]	−0.020 (−10.749) [0.000]
Low Minority Authority Differential	−0.125 (−94.016) [0.000]	−0.113 (−72.482) [0.000]	−0.114 (−47.616) [0.0000]
Moderate Minority Authority Differential	−0.102 (−75.998)	−0.095 (−60.340)	−0.098 (−39.577)

	[0.0000]	[0.0000]	[0.0000]
High Minority Authority Differential	−0.112 (−85.912) [0.0000]	−0.109 (−70.252) [0.0000]	−0.094 (−43.386) [0.0000]

Note: T-statistic values are inside parentheses and two-tailed probability values are inside brackets.
All mean difference estimates reject the social desirability hypothesis.

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