Resolving Inequalities in the Government Workplace:

Status-Group Power Differentials as Reference Points for Fostering Diversity and Inclusion within U.S. Federal Agencies

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<u>Abstract</u>

A challenge confronting the contemporary American administrative state is the need to bolster diversity and inclusion within U.S. federal public agencies. Power asymmetries embedded within public sector organizations, reflected by the distinction between supervisory and non-supervisory personnel, are critical for understanding the extent that diversity and inclusion are fostered within U.S. federal agencies. Leveraging data covering approximately 2.51 million U.S. federal employees within 124 agencies between 2010-2019, the statistical evidence demonstrates that status-group power differentials (SGPDs) experienced by both women and minorities predict employee evaluations of agency efforts at fostering D&I. These employee evaluations, however, are predicted neither by the overall nor supervisory proportion of women and minority employees of U.S. federal agencies that treat their status group as fixed. Differential SGPD effects are most pronounced for minority respondents, especially among supervisory respondents. Yet, SGPD effects are similar between men and women respondents in both supervisory and non-supervisory positions.

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Fostering diversity and inclusion (D&I) within public sector organizations is one of the preeminent challenges facing the modern administrative state. For instance, this challenge is duly recognized as a top priority within the U.S. federal government. According to the U.S. Office of Personnel Management (OPM) fostering D&I offers three primary benefits (OPM 2022: "FAQ: Diversity and Inclusion"). The first benefit is that public agencies better serve both the needs and interests of marginalized populations. The second benefit is that public agencies become more innovative by exploiting creativity opportunities that arise from the heterogeneous backgrounds of government employees (see also, OPM 2011: 26-27; Page 2007). Finally, public agencies accrue higher returns on human capital by reducing personnel turnover, grievances, and complaints, while enhancing greater employee commitment and motivation (see also, Andrews and Ashworth 2015; Chordiya 2022; Sabharwal, Levine, D'Agostino, Nguyen 2019).

In support of these goals, the Federal Equal Opportunity Recruitment Program (FEORP) within the U.S. Office of Personnel Management (OPM) has long advocated a systematic assessment and evaluation of successful agency practices for creating a more diverse and inclusive federal workforce (e.g., 2018 FEORP Annual Report:

https://www.opm.gov/policy-data-oversight/diversity-and-inclusion/reports/feorp-2018.pdf).

In turn, President Joseph R. Biden issued Executive Order 14035 on June 25, 2021 seeking to improve D&I within the U.S. federal workforce. In part, this order notes that:

"As the Nation's largest employer, the Federal Government must be a model for diversity, equity, inclusion, and accessibility, where all employees are treated with dignity and respect. Accordingly, the Federal Government must strengthen its ability to recruit, hire, develop, promote, and retain our Nation's talent and remove barriers to equal opportunity. It must also provide resources and opportunities to strengthen and advance diversity, equity, inclusion, and accessibility across the Federal Government. The Federal Government should have a workforce that reflects the diversity of the American people. A growing body of evidence demonstrates that diverse, equitable, inclusive, and accessible workplaces yield higher-performing organizations." [Paragraph 3]

Addressing the challenge of improving D&I within the U.S. federal workforce is necessary for the effective functioning of these public organizations if they are to be effective at program service delivery for historically under-represented and marginalized populations. Improving D&I within U.S. federal agencies facilitates both recruitment and retention of employees coming from backgrounds reflecting both historically underrepresented and marginalized populations. These efforts are vital due to the shifting demographic and cultural landscape during the past few decades (OPM 2018; Rosenberg 2008). Enhancing D&I within the U.S. federal workforce is essential to cultivating an organizational culture premised on *esprit de corps* and solidarity among its members.

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 by "develop(ing) structures and strategies to equip leaders with the ability to manage diversity, be accountable, measure results, refine approaches on the basis of data, and institutionalize a culture of inclusion." (OPM 2011: 3-4). Sustainability relies on those holding managerial and supervisory positions to make both measurable and sustainable progress toward diversity and inclusion efforts, including through training, performance evaluation, and programmatic activities (OPM 2011: 21).

Motivated by goals of fostering diversity and inclusion within the contemporary

American administrative state, this study analyzes how the personnel composition within U.S. federal agencies translates into the perceived commitment towards fostering D&I held by federal government employees. The thesis advanced is a simple one. Power is asymmetrically distributed within organizations. Supervisors enjoy power advantages over non-supervisory colleagues. Hence, such power imbalances are critical for understanding the extent that D&I can be fostered within public agencies. A theory rooted in status-group power differentials (SGPDs) is proposed to explain the consequences of such power imbalances within U.S. federal agencies. SGPDs are effective at predicting U.S. federal employee evaluations regarding the extent to which their agencies are effective in fostering D&I, while measures that analyze the overall or supervisory proportion of social identity 'out-group' (i.e., women and minority) employees within U.S. federal agencies do not predict the fostering of D&I. One SGPD measure evaluates the out-group balance of supervisory to non-supervisory employees within a given agency (absolute SGPDs), while a second SGPD measure represents the ratio of out-group to in-group balance of supervisory to nonsupervisory agency personnel (relative SGPDs). These two SGPD measures are conceptually distinct measures that are correlated at 0.315 and 0.370 for gender and racial/ethnic minority status, respectively. Absolute SGPDs capture the distribution of authority held by the out-group based on supervisory and non-supervisory distinction. Relative SGPDs capture the relative distribution of authority held by the out-group vis-àvis in-group in the form of women and minority U.S. federal agency personnel compared to men and non-minority administrative colleagues.

An analysis of approximately 2.51 million U.S. federal employees comprising 124 agencies from 2010-2019 (representing 88.91% of all U.S. federal civilian employment covered by Federal Employee Viewpoint Survey [FEVS] during this time frame) reveal that both SGPD measures are positively associated with U.S. federal employee evaluations of

D&I efforts undertaken by their respective agencies, while standard overall and supervisory descriptive representation measures within a given status-group are not correlated with such evaluations. Analyzing data by respondent type reveals that gendered SGPD effects uncover no discernible D&I evaluation differences between men and women, regardless of status position. Conversely, racial/ethnic minority supervisory respondents' evaluations of agency D&I efforts are more closely linked to both the absolute and relative proportion of this out-group's representation in supervisory to non-supervisory positions than compared to non-supervisory respondent counterparts. These out-group respondent differences might be attributable to the fact that women enjoy higher overall and supervisory levels of representation within U.S. federal agencies (e.g., OPM 2018), as well as previous research demonstrating that racial/ethnic minorities exhibit both greater cohesion and homogeneity relative to women (Badas and Stauffer 2018; Conover 1988).

The broader lesson from this study is a simple, albeit powerful one for both understanding and resolving inequalities within government organizations. The status position of out-group members (i.e., women and minority federal agency employees), and not merely the presence in numbers/proportions, is critical for understanding how these members' interests are being qualitatively represented within organizational settings. That is, power asymmetries between different status-groups are critical for understanding how both political and governmental organizations internally facilitate reducing inequalities in the federal government workplace experienced by both women and minorities. Normatively, these findings support the notion that power distributed more favorably to these 'outgroups' within government organizations is critical for not only ensuring trust, but also enhancing the *de facto* legitimacy of governmental institutions (e.g., Mansbridge 1998, 2015). Next, the importance of fostering D&I within U.S. federal agencies is discussed.

FOSTERING DIVERSITY AND INCLUSION IN PUBLIC ORGANIZATIONS

Fostering diversity and inclusion (D&I) within the U.S. federal civilian workforce is important to ensure both effective and equitable administrative governance. Creating such an environment has direct consequences for promoting social equity in governing (Grissom and Keiser 2011; Kelly and Newman 2001; Naff 1995; Riccucci and Van Ryzin 2017). This problem is acute among U.S. federal government employees in managerial positions, and is reflected by Bill Valdez, former president of the Senior Executives Association, a professional organization representing U.S. federal career executives:

"Hiring decisions that create a workforce that does not reflect the changing demographics of our nation are likely to have unintended consequences," Valdez said, "such as investment decisions that do not address the needs of women and minorities, or the perpetuation of federal policies that have contributed to underrepresentation in the federal workforce." (Davidson 2018)

The U.S. federal government's workforce has grown more diverse over the past few decades due to both demographic and cultural changes, thus resulting in a greater need for government to effectively manage an increasingly diverse public sector workforce (Kellough and Naff 2004; Naff and Kellough 2003). According to the most recent OPM FEORP report (2018: 2), the percentages of the U.S. federal government civilian workforce are 37.7% and 43.4 for minority and women employees, respectively. For the top leadership positions within the civil service of the U.S. federal government, the percentage of minorities occupying Senior Executive Service (SES) positions is 21.2%, while the percentage of women in these positions is 33.8% (OPM 2018:2). As the U.S. federal government civilian workforce becomes increasingly diverse, fostering a diverse and inclusive workplace environment is crucial. Yet, the benefits of diversity are substantially enhanced when

agencies effectively manage diversity and promote inclusion (e.g., Choi and Rainey 2010; OPM 2011, 2018; Sabharwal 2014).

Therefore, the importance of status-group power imbalances within organizations is critical for better understanding the conditions that foster diversity and inclusion within administrative environments, and by extension, resolving inequalities within the U.S. federal government workforce. Addressing such status-group power imbalances is critical for empowering out-group interests (i.e., women and minorities) since communicative trust is enhanced between these individuals and those lacking such authority (Mansbridge 1998: 641-643; 2015: 264). On a broader level, enhancing status-group power imbalances involving the distribution of government authority to favor out-group interests also results in the greater *de facto* legitimacy associated with government decisions in democratic settings (Mansbridge 1998: 650-652; 2015: 265).

CHARACTERIZING ASYMMETRIC POWER WITHIN ORGANIZATIONS: THE CRITICAL ROLE OF STATUS-GROUP POWER DIFFERENTIALS [SGPDs]

The distribution of authority within organizations is crucial for understanding both the formal and informal aspects of organizations. Writing over sixty years ago, Robert V. Presthus (1960: 88) offered insights that underscore the critical role of power imbalances within organizations resulting from the asymmetric distribution of authority:

"The formal allocation of authority is also reinforced by various psychological inducements, including status symbols, rewards, and sanctions. Such differential allocations of status, income, and authority have important objectives and consequences other than as personal rewards for loyal and effective service. They provide a battery of cues or signals for the entire organization; they provide the framework for personal transactions; they communicate appropriate behavior and dramatize its consequences. In brief, such signals define and reinforce authority."

Although Presthus' insights were applied to organizations in a general manner, they remain highly applicable for analyzing both the gender and racial/ethnic dynamics of public sector organizations. Understanding an organization's effectiveness at fostering a diverse and inclusive environment requires focusing on status-group power differentials (SGPDs) involving social identity out-groups. This is because the distribution of organizational authority has tangible implications not only for members possessing authority, but also for those members whom lack such authority.

Because authority is asymmetrically distributed within both private and public sector organizations, taking into account status-group power differentials (SGPDs) is essential for understanding how they function, especially with respect to members coming from historically underrepresented and marginalized groups. Power asymmetries arise among members based upon their status position within the organization. SGPDs transpire since members in high-status positions (supervisors) enjoy power over those members serving in low-status (non-supervisory) positions. According to Richard Emerson's (1962) pioneering research, the basis for SGPDs is rooted in the greater dependence of low-status members (e.g., non-supervisory personnel) on high-status members (e.g., supervisory personnel). For instance, supervisory members are charged with responsibility for apportioning time and resources for non-supervisory colleagues (Netemeyer, Maxham, and Lichtenstein 2010). Power imbalances between supervisors and non-supervisory personnel relating to both gender and minority status of members within organizations not only affect the nature of leadership-member exchanges (Jackson and Johnson 2012), but also influence how supervisors treat their non-supervisory colleagues (Farmer and Aguinis 2005).

A more favorable SGPD for historically underrepresented and marginalized social groups translates into greater effectiveness in attaining organizational outcomes that benefit their own group's interests since they are less susceptible to unfair treatment (Roscigno, et al. 2007). Because of the asymmetric distribution of organizational authority, improving SGPDs favoring women and minority government employees is crucial for

fostering D&I since high-status groups (supervisors) are known to exhibit biases for purposes of decision legitimacy (Tafjel and Turner 1986, see also Garstka, Hummert, and Branscombe 2005). Conversely, a rising share of non-supervisory members belonging to the social identity out-group (i.e., women and minorities) affords high-status group members to wield power at the expense of low-status group members (Gwinn, Judd, and Park 2013); and hence, the out-group members in non-supervisory positions are adversely affected in the workplace environment (Roscigno, Lopez, and Hodson 2009). A recent analysis of EEOC age discrimination formal complaints among U.S. federal employees uncovers aggregatelevel evidence of such dynamics associated with status-group power asymmetries (Krause and Park nd). The Krause and Park (nd) study, however, is limited in three critical ways for understanding how to create a more diverse and inclusive U.S. federal government workforce called for by both U.S. federal government officials and organizations. First, their study can only tap into a single manifestation of observable discriminatory behavior within an agency, and hence cannot adequately assess an agency's efforts at fostering D&I within the broader organizational climate, as well as instances when discrimination complaints are not filed. Moreover, Krause and Park's (nd) study focuses on age discrimination cases that encompass individuals often in prominent positions within the federal civilian workforce, that neither constitute historically underrepresented nor marginalized groups. Finally, their agency-level study cannot account for individual-level employee evaluations that may systematically vary across gender, race/ethnicity, and status group positions.

Given the difficulty of attaining social equity within administrative organizations (e.g., Grissom and Keiser 2011; Guy 1984; Kellough 1989; Kelly and Newman 2001; Lewis 1988; Meier 2019; Naff 1995; Riccucci and Van Ryzin 2017), coupled with the inherent nature of asymmetric power within organizations by design, improving SGPDs in favor of women and racial/ethnic minorities is requisite for fostering an organizational culture

conducive to D&I. Supervisors are the main catalyst for fostering D&I in government agencies as a means to spur advancement of 'out-group' members. For example, a U.S. federal government report to both Congress and the president states that:

The issue of status-position within federal agencies also has implications for racial and ethnic minorities within the U.S. federal civil service. Although the *overall* racial/ethnic 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). SGPDs thus serve as a vital mechanism for facilitating both a diverse and inclusive organizational environment. Because SGPDs allow status-group position to vary, these measures are distinct from existing measures analyzing social equity within public sector organizations that treat status-group position as fixed in terms of either overall or supervisory representation.

SGPDs are measured in two distinct, yet complementary ways. The first measure captures *absolute status group power differentials* by focusing on the within out-group (i.e., women and racial/ethnic minorities) ratio of supervisors to non-supervisory:

$$SGPD_{jt}^{OUT-GROUP} = \frac{\#Out - Group_{jt}^{HIGH STATUS}}{\#Out - Group_{jt}^{LOW STATUS}}.$$
 (1)

Higher values of SGPD^{OUT-GROUP} connote a more favorable representation of high status (supervisors) vis-à-vis low status (non-supervisory) for a given social identity 'out-group' within a given organization *j* at time *t*. This measure focuses only on evaluating the power imbalances attributable to position status within the organization for the out-group in isolation. In addition, *relative status group power differentials* are measured as the relative balance of favorable representation of high status (supervisors) versus low status (nonsupervisors) between out-group (i.e., women and racial/ethnic minorities) vis-à-vis in-group (i.e., men and non-racial/ethnic minorities) U.S. federal agency employees is employed to construct the following SGPD measure:

$$SGPD_{jt}^{\frac{OUT-GROUP}{IN-GROUP}} = \frac{\#Out - Group_{jt}^{HIGH STATUS} / \#In - Group_{jt}^{HIGH STATUS}}{\#Out - Group_{it}^{LOW STATUS} / \#In - Group_{it}^{LOW STATUS}} . (2)$$

 $SGPD^{\frac{OUT-GROUP}{IN-GROUP}}$ measures the relative balance of high-status to low-status positions for outgroup members vis-à-vis in-group members within organization j at time t. Higher values connote a more favorable status-group power differential favoring out-group members' relative to in-group members.

Figures 1 and **2** display Box-Whisker plots of the respective distribution for both common measures of descriptive representation (overall and among supervisory positions), plus the SGPD measures, involving the gender and racial/ethnic minority composition of U.S. federal civilian employees covering 124 U.S. federal agencies during the 2010-2019 annual period via OPM Personnel data.¹ First, the overall ratio of women to men agency

¹ A complete agency listing appears in Appendix A: Sample of U.S. Federal Agencies.

employees (Figure 1), as well as racial/ethnic minority to non-minority employees (Figure 2) appear as the top Box-Whisker plots. When comparing Figures 1 and 2, the level of overall descriptive representation is not only more favorable for women vis-à-vis racial/ethnic minorities (Median = 0.618, 0.511) while also comprises a higher empirical density since women constitute majority status within their agency (values exceeding 1.0) 37.69% of sample observations compared to 10.31% for racial/ethnic minority employees – a factor differential of 3.66. A similar pattern is observed with lower levels of supervisory-based descriptive representation when examining the ratio of 'out-group' to 'in-group' supervisors in the second set of Box-Whisker plots in Figures 1 and 2. The level of supervisory-based descriptive representation similarly favors women vis-à-vis minority U.S. federal agency employees (Median = 0.469, 0.356), while women supervisors have a greater relative propensity to attain a majority status within their agency (values exceeding 1.0) compared to minority supervisors (24.52% versus 3.70% – a factor differential of 6.63).

What is especially striking about these data pertains to the measures involving status-group power differentials (SGPDs). These differentials do not capture the sheer relative numerical representation of 'out-group' members characterized by descriptive representation measures.² Rather, these SGPD measures explicitly account for power imbalances within organizations by assessing the relative balance of authority to non-authority positions based on the supervisory/non-supervisory distinction. Data on the number of supervisory and non-supervisory U.S. federal agency employees used to create these SGPD measures are reported by federal agencies to the OPM Enterprise Human

² Bivariate correlations between overall and supervisory descriptive representation are $\rho = 0.956$, 0.990, while being modestly correlated to the SGPD measures (ranging between $-0.284 \le \rho \le 0.264$).



Resources Integration (EHRI) data warehouse (OPM 2021: 1-2). According to OPM (1998)'s General Schedule Supervisory Guide, the delegated supervisory authorities include but not limited to "using any of the following to direct, coordinate, or oversee work; exercising significant responsibilities in dealing with officials of other units or organizations, or in

advising management officials of higher rank; or making decisions on work problems presented by subordinate supervisors, team leaders, or similar personnel, or by contractors." (16-17). The distinctions between supervisory positions and non-supervisory positions offer insight into the tangible imbalances of formal authority within U.S. federal agencies.

The first set of patterns pertains to the *absolute* (within out-group) status-group power differential between the balance of women supervisors vis-à-vis non-supervisory women and the balance of racial/ethnic minority supervisors to non-supervisory racial/ethnic minorities (second to bottom Box-Whisker plots in **Figures 1** and **2**, respectively). A ratio of 1.0 for the SGPD^{OUT-GROUP} measure indicates numerical parity between out-group supervisors versus non-supervisor counterparts within a given agency. These ratios are much lower than conventional measures of descriptive representation discussed in the preceding paragraph for both women and racial/ethnic minorities, while being similar between these out-groups (Median = 0.117, 0.117), with similar amounts of variability (SD = 0.038, 0.041). This data pattern indicates that both women and minorities, on average, are overwhelmingly represented in non-supervisory positions vis-à-vis supervisory positions by a factor differential of 8.55 [1 / 0.117] for each out-group). Clearly, a vast majority of U.S. federal agency employees from historically marginalized groups serving in non-supervisory positions lack the proper organizational authority to foster D&I.

The bottom set of Box-Whisker plots appearing in **Figures 1** and **2** respectively display the between-identity group status-group power differential between women supervisory positions vis-à-vis women non-supervisory positions relative to men supervisory positions vis-à-vis men non-supervisory positions, as well as for racial/ethnic minority supervisory positions vis-à-vis racial/ethnic minority non-supervisory positions relative to non-minority supervisory positions vis-à-vis non-minority non-supervisory positions. These latter measures account for the *relative* status-group power differential for

the 'out-group' vis-à-vis the 'in-group' involving supervisory and non-supervisory agency positions. Numerical parity involving the relative balance of supervisors to non-supervisors for the 'out-group' vis-à-vis the 'in-group' is obtained when $SGPD^{OUT-GROUP} = 1$. Although $SGPD^{OUT-GROUP} \ge 1$ is extremely rare (Women = 1.74%; Racial/Ethnic Minorities = 2.13%), the median relative status-group power differential for women denoted in **Figure 1** is -28.2% ([0.718 - 1]*100), while it is -28.5% for racial/ethnic minorities ([0.715 - 1]*100) in **Figure 2**. These patterns reveal that it is considerably more common for status-group power differentials to favor 'in-group' members at the expense of 'out-group' members. Such authority imbalances pose an obstacle for fostering D&I within U.S. federal agencies. As noted earlier, these SGPD measures are not merely measuring the same concept, but rather constitute unique SGPD concepts, as evinced by the modest correlations ($\rho = 0.315, 0.370$) between the Absolute and Relative SGPD measures noted earlier.

Based on the preceding discussion of SGPDs, the following pair of hypotheses are proposed relating to the importance of improved SGPDs for women and racial/ethnic minorities employment for fostering D&I within U.S. federal agencies.

H1 (Absolute Out-Group SGPD Hypothesis): The out-group SGPD is positively associated with employee evaluations that their organization is effectively fostering D&I in the workplace environment.

H2 (*Relative* Out-Group SGPD Hypothesis): The out-group / in-group SGPD is positively associated with employee evaluations that their organization is effectively fostering D&I in the workplace environment. Next, these SGPD hypotheses are evaluated, in conjunction with those from existing studies of descriptive representation that analyze the overall and supervisory balance of social identity out-group members to in-group members, holding status group fixed.

DATA AND EMPIRICAL STRATEGY

Dependent Variable

Organizational efforts at fostering D&I within U.S. federal agencies are measured based on *Evaluations of Agency D&I Efforts* as a latent factor score derived from Federal Employee Viewpoint Survey (FEVS) survey instruments included in each year during the sample period (2010-2019).³ This measure taps into the latent level of individual employees' evaluations of organizational 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 and 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." These indicators are estimated in a confirmatory factor analysis model for each annual FEVS survey wave for purposes of generating weighted factor score estimate measures of this latent concept.⁴ Higher factor score estimate values indicate more favorable evaluations of agency D&I efforts.

 ³ Appendix B: Descriptive Statistics for Variables and Data Sources for descriptive statistics.
 ⁴ Appendix C: Construction and Estimation of Latent Measures for both Evaluations of Agency D&I Efforts & Organizational Justice Dependent Variables for additional details.

Status-Group Power Differential Covariates

The first set of primary covariates measuring status-group power differential (SGPD) for women and racial/ethnic minorities, are respectively measured as the ratio of women supervisors to women employees in non-supervisory positions within a given agency in a year and the ratio of minority supervisors to minority employees in non-supervisory positions within a given agency in a year, respectively.⁵ According to H1 (Absolute 'Out-Group' SGPD Hypothesis), these covariates should be positively associated with the employee evaluations of agency DEI efforts. The second set of primary covariates, *Relative SGPD for Women* and *Relative SGPD for Racial/Ethnic Minorities*, are employed to capture the relative balance of supervisory personnel in relation to non-supervisory personnel comparing out-groups (i.e., women, racial/ethnic minorities) to in-groups (i.e., men, racial /ethnic non-minorities). H2 (Relative 'Out-Group' SGPD Hypothesis) predicts that these *Relative SGPD* measures will also be positively associated with the employee evaluations of agency D&I efforts. These personnel data relating to the gender and race/ethnicity of supervisors are from OPM's FedScope U.S. federal workforce data.

Control Covariates

Overall Descriptive Representation and Supervisory Descriptive Representation variables are included to ensure that these characteristics are not confounding the SGPD effects of interest. Overall Descriptive Representation variables based on gender (Overall

⁵ The OPM Ethnicity and Race Indicator (ERI) classifies racial/ethnic 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

https://www.fedscope.opm.gov/datadefn/DataDefinitions.pdf).

Descriptive Representation of Women) and racial/ethnic minority status (Overall Descriptive Representation of Minorities) are defined as the ratio of women to men and the ratio of racial/ethnic minorities to racial/ethnic non-minorities within an agency in a given year, respectively. For Supervisory Descriptive Representation variables, Supervisory Descriptive Representation of Women is defined as the ratio of female supervisors to male supervisors, and Supervisory Descriptive Representation of Minorities is defined as the ratio of racial/ethnic minority supervisors to racial/ethnic non-minority supervisors.

The statistical models 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 and 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.

Agency Head Social Identity binary indicator variables are included to control for potential confounding effects attributable to the presence of 'out-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) being administered is woman and racial/ethnic minority, and 0 otherwise. Each covariate is hypothesized as having 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 status-group power differentials between supervisory and non-supervisory personnel.

The statistical models also account for the possibility that the evaluations of agency D&I efforts are influenced by the proportion of professional employees within an agency for a given year. *Proportion of Professional Employees* is operationalized as the natural logarithm of the ratio of professional personnel to the total employees within an agency in a year.⁶ 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 covariate should yield a positive coefficient since larger federal agencies may have more resources (e.g., budget, personnel) to foster D&I workplace environment. Different presidential administration should affect employee evaluations of agency D&I efforts since presidents may have different inclinations toward agency efforts on fostering diverse, equitable, and inclusive work environment. *Obama Presidency* variable equals 1 for Obama administration observations (2010-2016) and equals 0 for Trump administration observations (2017-2019)

⁶ The CPDF (Central Personnel Data File) categorizes occupational category as professional, administrative, technical, clerical, other white collars, blue collar, and unspecified (OPM 2009).

to account for differential D&I employee evaluations under different presidencies. The binary indicator, *Independent Agency*, is also included in the statistical models, and is operationalized as 1 for independent agencies (including independent executive agencies, independent regulatory commissions, and government corporations), and as 0 for executive agencies that are part of cabinet departments. Because independent agencies are both more decentralized and insulated from presidents, employees from independent agencies may differ in their D&I workplace evaluations compared to executive department counterparts.

To evaluate how out-group-based descriptive representation and SGPDs independently shape employee evaluations of agency D&I efforts, a series of ordinary least squares (OLS) estimating equations follow a log-log elasticity functional form to predict individual-level survey responses on U.S. federal agency efforts at fostering D&I⁷:

$$\ln D \& I_{i,j,t} = \alpha_{i,j,t} + \sum_{m=1}^{M} \beta_m \ln X_{mj,t} + \sum_{n=1}^{N} \pi_n Z_{j,t} + \sum_{j=1}^{J-1} \lambda_{j-1} O_j + \sum_{t=1}^{T-1} \delta_{t-1} FEVS_t + \varepsilon_{i,j,t} , \quad (3)$$

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 evaluating the gender or racial/ethnic composition of U.S. federal agencies are 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

⁷ The log-log model specification mitigates outlying values of the key variables of interest, and also offers a comparable metric interpretation of these statistical estimates.

term ($\varepsilon_{i,j,t}$). Inclusion of both agency-level and FEVS survey wave unit effects ensure that the core relationships of interest are neither confounded by idiosyncratic differences unique to each agency (e.g., organizational cultures) nor sampling and other temporal-based variations across different FEVS survey waves. All models are estimated with robust standard errors clustered by agency account for intra-agency unit dependence among survey respondents. Because the SGPD measures of interest 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 (e.g., Favero and 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 appear in **Tables A1** – **A3** located at the end of the manuscript.

Baseline Models

Figure 3 displays the core set of elasticity estimates from six regression models of the form of Equation (3). **Models 1 & 2** evaluate the relationship between the ratio of total women to total men agency employees and the ratio of total racial/ethnic minority employees to total non-minority agency employees, respectively. The statistical findings reveal that both gender and racial/ethnic minority-based measures of overall descriptive representation yield rather small and statistically insignificant predictors of agency D&I efforts based on employee evaluations (see also, Choi and Rainey 2014). Evaluating the outgroup/in-group balance among supervisory personnel (*Supervisory Descriptive*

Representation) reveals somewhat larger elasticity estimates obtained from **Models 3 – 6** than compared to the overall descriptive representation estimates from **Models 1 & 2**, albeit these are null findings indicating an absence of a statistical relationship.⁸

The SGPD elasticity estimates appear in the right-hand panel of elasticity estimates in **Figure 3**. In terms of *absolute* (within identity out-group) SGPDs, a standardized percentage change increase in the status-group supervisor to non-supervisory personnel balance favoring women and racial/ethnic minorities for a given agency is associated with a 6.30% (0.097 × 64.96%) and 6.24% (0.089 × 70.09%) increase in favorable evaluations of agency D&I efforts.⁹ Although an analogous standardized percentage change increase in the *relative* status-group balance between women (men) in supervisory (non-supervisory) positions and men (women) in non-supervisory (supervisory) positions is associated with a 5.48% (0.148 × 37.05%) average rise in agency D&I efforts, the analogous effects when evaluating the relative status-group balance between racial/ethnic minorities and nonminorities in terms of supervisory and non-supervisory personnel are rather modest 0.73% (0.018 × 40.28%), and also not statistically discernible from zero.

Closer Inspection of SGPD Effects, I: By Gender & Race/Ethnicity of Respondent

Analyzing employee evaluations disaggregated by both gender and racial/ethnic identity can shed light on the variable nature of the statistical association between statusestimates obtained in **Models 7 & 9** that interact a binary gender respondent indicator group power imbalances and agency D&I efforts. This analysis is derived from the

⁸ Tabular regression results appear in *Table A1* at the end of the manuscript.

⁹ The standardized percentage change in each SGPD covariate is computed as {(Standard Deviation

⁺ Median) / Median] – [(Standard Deviation – Median) / Median]*100}.



reflecting men (= 0) versus women (= 1) distinctions reported in the FEVS data, as well as those obtained from **Models 8 & 10** that interact a binary minority respondent indicator (= 1, = 0 for non-minority respondents) are also reported in the FEVS data.¹⁰

The resulting elasticity estimates are graphically displayed in **Figure 4**. These estimates consistently show that both absolute and relative SGPDs are extremely similar among men and women respondents – with an elasticity difference of +0.004 (0.099 – 0.095) in **Model 7** and –0.001 (0.0148 – 0.149) in **Model 9**. In contrast, such respondent differences occur between racial/ethnic minority and non-minority agency personnel in both **Models 8 & 10**. Not only do the **Model 8** elasticity estimates indicate that racial/ethnic minority respondents are significantly more responsive in their agency D&I assessments in response to a rising balance of racial/ethnic minority to supervisors employed within their

 $^{^{10}}$ Tabular regression results appear in *Table A2* at the end of the manuscript.

agency (0.094) than compared to non-minority respondent (0.087), thus netting a difference (+ 0.007) that is statistically indistinguishable from zero. When evaluating relative SGPDs with respect to race/ethnicity of respondent in **Model 10**, minority respondents view improving the relative power balance of agency positions in this out-group's favor is



associated with fostering D&I within the agency more favorably compared to non-minority respondents by 0.044 (0.047 – 0.003). A standardized percentage change increase associated with 'out-group' supervisory personnel compared to non-supervisory personnel corresponds to 1.77% (0.044 × 40.28%) differential average increase in favorable D&I effort responses for minority respondents compared to non-minority respondents. Although modest in magnitude, this differential is greater compared to the analogous differences between women versus men respondents ($0.26\% = 0.007 \times 37.05\%$) – a factor differential of 6.81.

Taken together, these findings indicate that although women and men have similar assessments when it comes to D&I benefits improving SGPDs for women vis-à-vis men within U.S. federal agencies, non-minority agency employees do not perceive their own agencies effectively fostering D&I when their SGPDs decline vis-à-vis racial/ethnic minority agency employees. This begs the question – is the observed differential involving racial/ethnic minority and non-minority employee evaluations of agency D&I efforts attributable to improving SGPDs for the 'out-group' emanating from employees in nonsupervisory or supervisory positions? Next, this question is addressed by estimating statistical models disaggregating each SGPD effect by not only gender and racial/ethnic groups of respondents, but also by status-group reflecting service in either a nonsupervisory or supervisory agency position.

A Closer Inspection of SGPD Effects, II: By Gender & Race/Ethnicity of Respondent - Comparing Assessments Between Non-Supervisory versus Supervisors

The preceding set of statistical models are augmented by incorporating an interaction covariate between the SGPD covariates and binary indicator reflecting whether the respondent served in a non-supervisory (= 0) or supervisory (= 1) position within a federal agency. These SGPD estimates that distinguish between status-group position of employee respondents appear below in **Figures 5A** (non-supervisory respondents) and **5B** (supervisory respondents), respectively.¹¹ The empirical patterns of non-supervisory respondents displayed in **Figure 5A** are substantively similar compared to the findings presented in the previous section involving gender and race/ethnic group distinctions. Both women and men respondents view improving the status-group balance in favor of women agency employees as being similarly beneficial for promoting agency efforts at D&I. The only tangible differences for non-supervisory personnel respondents between out-group and

¹¹ Tabular regression results appear in *Table A3* at the end of the manuscript.

in-groups pertain to racial/ethnic group respondent identity among those individuals serving in non-supervisory positions within federal agencies (**Model 14**), and such differences pertain to the relative status-group balance between each identity group

(Models 13 & 14). Among supervisory respondents displayed in Figure 5B, the elasticity estimate effect sizes are considerably larger for each type of SGPD, 'out-group' combination compared to those reflected by non-supervisory respondents (Models 11-14). In terms of both absolute and relative SGPD elasticity estimates, both men and women respondents holding supervisory positions within agencies make more favorable assessments of agency D&I efforts (*absolute SGPD*: men = 0.134, women = 0.114; *relative SGPD*: men = 0.190, women = 0.194) compared to gender counterparts holding non-supervisory positions





displayed in **Figure 5A** (*absolute SGPD*: men = 0.079, women = 0.095; *relative SGPD*: men = 0.134, women = 0.141). Similar patterns are observed with respect to minority employees willingness to link SGPDs to their assessments of agency D&I efforts, except that the minority/non-minority differences in these elasticity estimates are largest for supervisory respondents' between identity group comparisons involving relative SGPDs (0.067) in **Model 14**, while the smallest such differences occur for non-supervisory respondents in **Model 12** that account for the status-group balance of minority supervisors to minority non-supervisors (0.004).

Summary of Ancillary and Sensitivity Analyses

In supplementary analyses reported in the submitted **Online Appendix**, these data are analyzed in a variety of additional ways to consider not only potential heterogeneity in SGPD effects reported here, but also alternative explanations of these employee evaluations relating to fostering D&I within their federal agencies. For instance, a subsample analysis disaggregated by presidential administration (see Appendix D) reveals that the only administration-based differences that occur are with SGPD effects being statistically discernible from zero under the Obama administration subsample for H2 (Relative 'Out-*Group'* SGPD Hypothesis) with respect to minority descriptive representation within U.S. federal agencies (Obama – Trump administration difference = 0.052, $p \le 0.05$) – and that these statistically discernible presidential differences are twice the magnitude for minority 'out-group' respondents (0.078) compared to women 'out-group' respondents (0.039). This empirical pattern suggests that federal employees did not view SGPDs as beneficial for fostering D&I under the Trump administration as was the case during the Obama presidency. In addition, the sensitivity of the reported results is evaluated using an alternative latent employee evaluation measure as a dependent variable that taps into the broader concept of organizational justice that represents an outcome-based consequence of D&I process-based efforts (see *Appendix E*).¹² These results are consistent with the reported findings, except that the women-men absolute SGPD evaluation difference is less conservative than reported here with respect to non-supervisory personnel in 'lower-status' positions within federal agencies. These statistical findings exhibit convergent validity since they are corroborated using an alternative latent evaluative criterion – organizational justice evaluations by U.S. federal government employees that is a natural product associated with D&I process-based efforts.

¹² 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 accounts for three dimensions of this latent concept, thus omitting the informational component.

In addition, sensitivity analyses are performed by omitting supervisory descriptive representation as a covariate as another means of evaluating the stability of the statistical estimates and inferences reported here based on inclusion of these covariates; and also extreme-valued observations of the *relative* SGPD covariates that exceed the 'equal proportion' parity threshold of 1.0 denoted with the navy blue vertical dashed lines in Figures 1 & 2 (see Appendix F).¹³ The findings from these sensitivity analyses are substantively identical to those reported here. Finally, the social identity of the top administrative official that is accounted for as a control variable in the reported model specifications, is considered as potentially having a positive salutary conditioning effect on the statistical relationship between SGPDs and employee evaluations of their agency's efforts at fostering D&I (see *Appendix G*). In most instances, these SGPD estimates do not systematically differ between 'out-group' 'in-group' gender and race/ethnicity distinctions. Exceptions occur for minority SGPDs within federal agencies, with minority headed agencies enhancing the relationship between SGPD and non-minority employee D&I evaluations; and agencies headed by women being associated with a reduction in the SGDP effect compared to men agency heads that can be attributed to women respondents.

Additionally, alternative empirical possibilities not directly related to the current manuscript are also considered in the *Appendix* document. First, we evaluated whether the latent outcome measure of agency D&I efforts (*Evaluations of Agency D&I Efforts*) may exhibit social desirability bias insofar that out-group respondents (women and minority U.S. federal government employees) will tend to have an equal, or perhaps more sanguine view of agency D&I efforts compared to in-group respondents (men and non-minority U.S.

¹³ The omission of these above-parity SGPD values constitute an omission of 43,679 (1.74%) and 53,549 (2.13%) of observations in the gender and racial/ethnic minority models, respectively.

federal government employees). A series of difference in means tests rejects this notion since out-group respondents have a noticeably more skeptical view of their agency's D&I efforts compared to in-group respondents, regardless of whether the agency reflects low, moderate, or high absolute and relative SGPDs, as well as whether they serve in either supervisory or non-supervisory positions (see *Appendix H*). Potential intersectionality effects (e.g., Cole 2009; Mügge and Erzeel 2016; Williams 2014) are considered to inspect whether power asymmetries, reflected by the absolute and relative SGPD measures, are associated with a more positive differential effect for minority women U.S. federal government employees compared to other respondents. These results indicate no difference in most instances, except a positive differential for women minority respondents with respect to the relative minority SGPD model specification – though such observed differences were effectively equivalent between supervisory and non-supervisory personnel (see *Appendix I*). Lastly, statistical models accounting for spillover or contagion effects between social identity groups yield estimates produce the same substantive conclusions as those reported in the manuscript, though in a few instances the primary SGPD estimates of interest for non-supervisory respondents are slightly less precise relative to the corresponding model estimates reported here (see *Appendix J*).

IMPLICATIONS

Normative theories of representation applied to governance problems presume that sufficient numbers or proportions of 'out-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 might offer a sensible foundation for analyzing the relationship between citizens and government officials regarding the substantive representation of policy and administrative interests (e.g., Meier and

Nicholson-Crotty 2006; Nicholson-Crotty, et al. 2016; Wilkins and Keiser 2006), this approach is not well suited for understanding collective behavior involving public sector organizations where power is asymmetrically distributed by design. This study analyzes the set of government organizations employing most of the U.S. federal civilian workforce – U.S. federal agencies.

Recent efforts by the U.S. federal government to increase diversity and inclusion (D&I) within the U.S. federal civilian workforce have been viewed as offering three primary benefits for improving organizational performance, according to OPM (2022: *FAQ, Diversity and Inclusion*). To achieve the benefits of D&I by resolving inequalities within U.S. federal agencies, it is critical to improve the importance of status-group power differentials favoring both women and minority civil servants serving in supervisory positions relative to non-supervisory positions. The power imbalances embedded in supervisory and non-supervisory positions, and not merely descriptive numbers of individuals in either position or the entire organization, represent a critical element for understanding the extent that federal agencies are viewed as fostering a diverse and inclusive work setting. Because power is asymmetrically distributed within political and government organizations by design, the empirical evidence obtained from roughly 2.51 million U.S. federal government employee evaluations suggests that it is necessary that both women and minority U.S. federal agency personnel occupy a larger share of high-status positions vis-à-vis low-status positions to enhance the fostering of a diverse and inclusive organizational environment.

More broadly, status-group power differentials shed light on the dynamics of the modern U.S. administrative state since it takes seriously the importance of power asymmetries within organizations most responsible for democratic governance most acutely affecting historically marginalized groups within American society. The importance of status-group power 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 status-group power differentials in favor of women and minorities within the U.S. federal civilian workforce can 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 (e.g., MSPB 2011; OPM 2011, OPM 2018), but also codified in Executive Orders 13583 and 14035 issued by Presidents Obama and Biden, respectively.

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Covariates	Model 1	Model 2	<u>Model 3</u>	Model 4	Model 5	Model 6
Absolute SGPD for Women (Ln)			0.097^{***}			
Absolute SCPD for Pasial/Ethnia Minorities (In)			(0.027)	0.089**		
Absolute SGI D for Racial/Ethnic Minorities (En)				(0.033)		
Relative SGPD for Women (Ln)					0.148*	
					(0.064)	0.019
Relative SGPD for Racial/Ethnic Minorities (Ln)						(0.018)
Overall Descriptive Perrogentation for Women (In)	-0.026					
Overall Descriptive Representation for Women (Ln)	(0.062)					
Overall Descriptive Representation for Racial/Ethnic		0.031				
Minorities (Ln)		(0.043)				
Supervisory Descriptive Representation for Woman (In)			0.045		0.009	
Supervisory Descriptive Representation for Women (Lin)			(0.034)		(0.054)	
Supervisory Descriptive Representation for Racial/Ethnic				0.019		0.056
Minorities (Ln)				(0.039)		(0.043)
Condex of Personandant	-0.039^{***}	-0.039^{***}	-0.039^{***}	-0.039^{***}	-0.039^{***}	-0.039^{***}
Gender of Respondent	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Pagial/Ethnia Minority Pagnondont	-0.094^{***}	-0.095^{***}	-0.095^{***}	-0.095^{***}	-0.094^{***}	-0.095^{***}
Racial Etimic Minority Respondent	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Company Status of Deserve dont	0.127^{***}	0.127^{***}	0.127^{***}	0.127^{***}	0.127^{***}	0.127^{***}
Supervisory Status of Respondent	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Aganey Hoad Gandar Idantity	-0.004		0.001		-0.002	
Agency mean dender mentity	(0.005)		(0.004)		(0.004)	
Agency Head Minority Identity		0.007		0.010^{+}		0.008
rigency flead winfority identity		(0.006)		(0.006)		(0.006)
Proportion of Professional Employees (Ln)	0.025	0.023	-0.003	0.004	0.004	0.018
	(0.050)	(0.055)	(0.040)	(0.046)	(0.045)	(0.053)
Obama Presidency	0.057^{***}	0.062^{***}	0.073^{***}	0.072^{***}	0.072^{***}	0.070^{***}
	(0.009)	(0.012)	(0.008)	(0.011)	(0.009)	(0.012)
Independent Agency	0.149	0.064	0.048	0.102	0.053	0.018
	(0.126)	(0.088)	(0.076)	(0.074)	(0.108)	(0.085)
Organizational Size (Ln)	0.070+	0.065	0.098**	0.096**	0.076*	0.066
	(0.036)	(0.040)	(0.031)	(0.034)	(0.033)	(0.040)
Agency Fixed Effects	YES	YES	YES	YES	YES	YES
FEVS Survey-Wave Fixed Effects	YES	YES	YES	YES	YES	YES
N x T	2,509,558	2,509,558	2,509,558	2,509,558	2,509,558	2,509,558
<u>NOTE</u> : Robust standard errors are clustered by agencies.	$^{+}p < 0.10,$	p < 0.05,	p < 0.01	1, p < 0	0.001.	

TABLE A1: Statistical Models Generating Figure 3 Estimates

<u>Covariates</u>	Model 7	Model 8	Model 9	Model 10
Absolute SGPD for Women (Ln)	0.095^{**}			
	(0.030)			
Absolute SGPD for Women (Ln) \times Gender of Respondent	0.004			
	(0.013)			
Absolute SGPD for Racial/Ethnic Minorities (Ln)		0.087^{*}		
		(0.034)		
Absolute SGPD for Bacial/Ethnic Minorities (Ln) ×				
Racial/Ethnic Minority Respondent		0.007		
		(0.009)		
Deleting CCDD for Women (L.r.)			0 1 40*	
Relative SGPD for women (Ln)			0.149	
Deleting CCDD for Women (La) X Condex of Despendent			(0.064)	
Relative SGPD for women (Ln) × Gender of Respondent			-0.000	
Deleting CODD for Design/Etheric Minerities (Let			(0.019)	0.002
Relative SGPD for Racial/Ethnic Minorities (Ln)				(0.003)
				(0.045)
Relative SGPD for Racial/Ethnic Minorities (Ln) \times				0.044**
Racial/Ethnic Minority Respondent				(0.044)
				(0.010)
Supervisory Descriptive Representation for Women (Ln)	0.045		0.009	
	(0.034)		(0.054)	
Supervisory Descriptive Representation for Racial/Ethnic Minorities (Ln)	()	0.019	()	0.057
		(0.039)		(0.043)
Gender of Respondent	-0.030	-0.039***	-0.039^{***}	-0.039***
	(0.027)	(0.004)	(0.006)	(0.004)
Racial/Ethnic Minority Respondent	-0.095^{***}	-0.079^{***}	-0.094^{***}	-0.079^{***}
	(0.004)	(0.021)	(0.004)	(0.006)
Supervisory Status of Respondent	0.127^{***}	0.127^{***}	0.127^{***}	0.127^{***}
	(0.007)	(0.007)	(0.007)	(0.007)
Agency Head Gender Identity	0.001		-0.002	
	(0.004)		(0.004)	
Agency Head Minority Identity		0.010		0.008
		(0.006)		(0.006)
Obama Presidency	0.073^{***}	0.072^{***}	0.072^{***}	0.070^{***}
	(0.008)	(0.011)	(0.009)	(0.012)
Independent Agency	0.047	0.102	0.053	0.016
	(0.076)	(0.074)	(0.108)	(0.085)
Proportion of Professional Employees (Ln)	-0.002	0.004	0.004	0.018

TABLE A2: Statistical Models Generating Figure 4 Estimates

	(0.040)	(0.046)	(0.045)	(0.054)
Organizational Size (Ln)	0.098^{**}	0.096**	0.076^{*}	0.067
	(0.031)	(0.034)	(0.033)	(0.040)
Agency Fixed Effects	YES	YES	YES	YES
FEVS Survey-Wave Fixed Effects	YES	YES	YES	YES
N x T	2,509,558	2,509,558	2,509,558	2,509,558
NOTE : Robust standard errors are clustered by agencies. $p < 0.10$,	* $p < 0.05$, ** $p <$: 0.01, *** p	<i>o</i> < 0.001.	

Covariates	Model 11	<u>Model 12</u>	Model 13	<u>Model 14</u>
Absolute SGPD for Women (Ln)	0.079^{*}			
Absolute SGPD for Women (Ln) × Gender	0.016 (0.018)			
Absolute SGPD for Women (Ln) × Supervisory Status of Respondent	0.054^+ (0.031)			
Absolute SGPD for Women (Ln) × Gender of Respondent × Supervisory Status of Respondent	-0.036^{+} (0.018)			
Absolute SGPD for Racial/Ethnic Minorities (Ln)		0.081* (0.038)		
Absolute SGPD for Racial/Ethnic Minorities (Ln) × Racial/Ethnic Minority Respondent		0.004 (0.011)		
Absolute SGPD for Racial/Ethnic Minorities (Ln) \times Supervisory Status of Respondent		0.019 (0.021)		
Absolute SGPD for Racial/Ethnic Minorities (Ln) × Racial/Ethnic Minority Respondent × Supervisory Status of Respondent		0.022** (0.008)		
Relative SGPD for Women (Ln)			0.134^{*} (0.065)	
Relative SGPD for Women (Ln) × Gender			0.007 (0.026)	
Relative SGPD for Women (Ln) × Supervisory Status of Respondent			0.057 (0.041)	
Relative SGPD for Women (Ln) × Gender of Respondent × Supervisory Status of Respondent			-0.003 (0.029)	
Relative SGPD for Racial/Ethnic Minorities (Ln)				-0.000 (0.048)
Relative SGPD for Racial/Ethnic Minorities (Ln) × Racial/Ethnic Minority Respondent				(0.039^{*}) (0.019)

TABLE A3: Statistical Models Generating Figure 5A & 5B Estimates

Relative SGPD for Racial/Ethnic Minorities (Ln) × Supervisory Status of Respondent				0.012
Polotivo SCPD for Poolol/Ethnia Minorition (In) x Poolol/Ethnia Minority				(0.027)
Repared on t × Supervisory Status of Respondent				(0.029)
Respondent × Supervisory Status of Respondent	0.047		0.008	(0.017)
Supervisory Descriptive Representation for Women (Ln)	(0.047)		(0.054)	
Supervisory Descriptive Representation for Racial/Ethnic Minorities (Ln)	(0.034)	0.020 (0.039)	(0.004)	0.057 (0.043)
Contract Device that		-0.039^{***}	-0.039^{***}	-0.039^{***}
Gender of Respondent	(0.040)	(0.004)	(0.010)	(0.004)
Regiol/Ethnia Minovity Regnandant	-0.094^{***}	-0.088^{***}	-0.094^{***}	-0.083^{***}
Racial Etimic Minority Respondent	(0.004)	(0.024)	(0.004)	(0.007)
Supervisory Status of Respondent	0.239^{***}	0.167^{***}	0.144^{***}	0.129^{***}
Supervisory Status of Respondent	(0.068)	(0.047)	(0.021)	(0.014)
Gender of Respondent x Supervisory Status of Respondent	-0.068		0.006	
dender of nespondent ~ Supervisory Status of nespondent	(0.041)		(0.014)	
Racial/Ethnic Minority Respondent x Supervisory Status of Respondent		0.055^{**}		0.017^{+}
Maria Dunne Minority Respondent - Supervisory Status of Respondent		(0.018)		(0.009)
Agency Head Gender Identity	0.001 (0.004)		-0.002 (0.004)	
Agency Head Minority Identity		0.010 (0.006)		0.008 (0.006)
		(00000)		(0000)
	0.074^{***}	0.072^{***}	0.072***	0.070***
Obama Presidency	(0.008)	(0.011)	(0.009)	(0.012)
To Jacob Jacob Array and	0.045	0.101	0.055	0.016
Independent Agency	(0.077)	(0.075)	(0.108)	(0.085)
Droportion of Drofossional Employees (In)	-0.003	0.004	0.004	0.018
r roportion of r rolessional Employees (Ln)	(0.040)	(0.046)	(0.044)	(0.053)
Organizational Size (In)	0.099^{**}	0.096**	0.078^{*}	0.067
Organizational Size (LII)	(0.031)	(0.034)	(0.033)	(0.040)
Agency Fixed Effects	YES	YES	YES	YES
FEVS Survey-Wave Fixed Effects	YES	YES	YES	YES
N x T	2,509,558	2,509,558	2,509,558	2,509,558
NOTE : Robust standard errors are clustered by agencies. $p < 0.10$, $p < 0.05$,	$^{**} p < 0.0$	$1, *^{**} p < 0$	0.001.	

ONLINE APPENDIX

Resolving Inequalities in the Government Workplace:

Status–Group Power Differentials as Reference Points for Fostering Diversity and Inclusion within U.S. Federal Agencies

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APPENDIX A

Full List of U.S. Federal Agencies (J = 124 Agencies)

Agencies	Sub-Agencies
Agency for International Development	Defense Commissary Agency
Broadcasting Board of Governors (U.S. Agency for Global Media)	Defense Contract Audit Agency
Commodity Futures Trading Commission	Defense Contract Management Agency
Consumer Product Safety Commission	Defense Finance and Accounting Service
Corporation for National and Community Service	Defense Human Resources Activity
Court Services and Offender Supervision Agency for the DC	Defense Information Systems Agency
Department of Education	Defense Logistics Agency
Department of Energy	Defense Missile Defense Agency
Department of Housing and Urban Development	Defense Office of the Inspector General
Department of State	Defense Threat Reduction Agency
Environmental Protection Agency	Defense TRICARE Management Activity (Defense Health Agency)
Equal Employment Opportunity Commission	Defense Education Activity
Federal Communications Commission	Defense Department of the Air Force
Federal Energy Regulatory Commission	Defense Department of the Army
Federal Housing Finance Agency	DefenseDepartment of the Navy
Federal Trade Commission	AG–Agricultural Marketing Service
General Services Administration	AG–Agricultural Research Service
International Trade Commission	AG–Animal&Plant Health Inspection Service
National Aeronautics and Space Administration	AG–Farm Service Agency
National Archives and Records Administration	AG–Food and Nutrition Service
National Credit Union Administration	AG–Food Safety and Inspection Service
National Gallery of Art	AG–Foreign Agricultural Service
National Labor Relations Board	AG–Forest Service
National Science Foundation	AG–National Agricultural Statistics Service
Nuclear Regulatory Commission	AG–Natural Resources Conservation Service
Office of Personnel Management	AG–Office of the Chief Financial Officer
Pension Benefit Guaranty Corporation	AG–Risk Management Agency
Railroad Retirement Board	AG–Office of Inspector General
Securities and Exchange Commission	Commerce–Bureau of Census
Small Business Administration	Commerce–International Trade Administration
Social Security Administration	Commerce–National Institute of STDs &
	Technology
	Commerce–National Oceanic & Atmospheric Admin
	Commerce–U.S. Patent and Trademark Office
	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–Substance Abuse & Mental Health Services
	Administration
	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
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–Office of Justice Programs
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
Interior-Bureau of Indian Affairs
Interior-Bureau of Land Management
Interior Bureau of Ocean Energy Management
Regulation and Enforcement
Interior_Bureau of Reclamation
Interior Bureau of Surface Mining
Interior Fish and Wildlife Service
Interior-Goological Survey
Interior-National Park Sorvico
Interior-Office of The Secretary
Tropsury_Alcohol & Tobacco Tax & Trado Buroau
Trossury-Buroau of Engraving and Printing
Treasury Bureau of the Public Debt
Treasury Departmental Offices
Treasury Departmental Offices
Tropoury Financial Management Service
Tropoury Figoal Somioo
Tropoury Internal Revenue Service
Tropoury Office of the Comptreller of the Curreney
Treasury Office of the Inspector Conoral
Treasury Office of Thrift Supervision
Treasury-Office of Third Supervision
Treasury-IG FOF Tax Administration
Transportation Endougl Arristian Administration
Transportation Federal Aviation Administration
Transportation Federal Highway Administration
Administration - rederal Wotor Carriers Safety
Auministration
Iransportation—rederal Kallroad Administration
VA-INational Cemetery Administration
VA-veterans Benefits Administration
vA-veterans Health Administration

APPENDIX B:

Descriptive Statistics and Data Source for Variables in Analysis

Variables	Mean	SD	Min	Max	Source
Evaluations of Agency D&I Efforts (Ln)	0.684	0.526	-4.927	1.126	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Evaluations of Agency Organizational Justice (Ln)	0.839	0.531	-6.301	1.354	Federal Employee Viewpoint Survey (FEVS) 2010–2019
Absolute SGPD for Women (Ln)	-2.152	0.323	-3.631	-0.989	OPM FedScope 2010–2019 September
Absolute SGPD for Racial/Ethnic Minorities (Ln)	-2.171	0.355	-3.683	-1.217	OPM FedScope 2010–2019 September
Relative SGPD for Women (Ln)	-0.354	0.196	-2.219	0.253	OPM FedScope 2010–2019 September
Relative SGPD for Racial/Ethnic Minorities (Ln)	-0.343	0.199	-1.422	0.507	OPM FedScope 2010–2019 September
Overall Descriptive Representation for Women (Ln)	-0.272	0.627	-1.352	1.239	OPM FedScope 2010–2019 September
Overall Descriptive Representation for Racial/Ethnic Minorities (Ln)	-0.594	0.567	-2.969	2.362	OPM FedScope 2010–2019 September
Supervisory Descriptive Representation for Women (Ln)	-0.582	0.639	-1.956	1.015	OPM FedScope 2010–2019 September
Supervisory Descriptive Representation for Racial/Ethnic Minorities (Ln)	-0.895	0.580	-3.106	2.201	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	0.400	0	1	Various Sources including Agency Website, Linkedln
Proportion of Professional Employees (Ln)	-1.698	1.030	-6.410	-0.106	OPM FedScope 2010–2019 September
Obama	0.642	0.479	0	1	Year
Independent	0.142	0.349	0	1	USA.gov website
Organizational Size (Ln)	10.448	1.506	5.075	12.743	OPM FedScope 2010–2019 September

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).

4

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 A** 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.

5







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 *Organizational 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) "Promotions in my work unit are based on merit"; (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 B** below).







SRMR: 0.040 CD: 0.970

APPENDIX D:

Conditional SGPD Effects Based on Presidential Administration Differences: Binary Obama Indicator: Trump = 0; Obama = 1 [SGPD Covariate × Obama Administration]

The conditional SGPD differential effects based on presidential administration differences (Obama administration versus Trump administration) are explored in **Appendix D. Figure D1** displays the relationship between absolute (Models 3-4 in the manuscript) and relative (Models 5-6 in the manuscript) SGPDs and employee evaluations of agency D&I efforts conditional on different presidential administrations. A more granular inspection evaluating the heterogeneity in this relationship by disaggregating responses by within-identity 'out-group' status and between-identity 'in-group' status is graphically displayed in **Figures D2A** (out-group respondents) and **D2B** (in-group respondents), respectively. These graphical estimates are based upon the baseline models (**Models 1-4: Figure 3**) as well as those considering social identity 'out-group' respondent differences (**Models 6-10: Figure 4**).

Sizable and statistically significant SGPD effects transpire for both women and minorities in a manner quite similar to what is presented in the manuscript based on the full sample of observations covering both presidential administrations. The only differential SGPD effects between the Obama versus Trump presidencies transpire with SGPD effects being statistically discernible from zero under the Obama administration subsample for **H2** (*Relative 'Out-Group' SGPD Hypothesis*) with respect to minority descriptive representation within U.S. federal agencies (Obama – Trump administration difference = 0.052, p ≤ 0.05) – and that these statistically discernible presidential differences are twice the magnitude for minority 'out-group' respondents (0.078) compared to women 'out-group' respondents (0.039). Also, as can be seen in **Figures D2A** and **D2B**, interaction/differential Obama versus Trump effect indicates that, on average, relative SGPD has a larger and significant effect during Obama administration vis-a-vis Trump administration by 7.26% [p = 0.028] for Minority Respondents and 3.94% [p = 0.051] for Non-Minority Respondents. These empirical patterns suggest that federal employees did not view SGPDs as beneficial for fostering D&I under the Trump administration as was the case during the Obama presidency.







'In' Group: Men Respondents, Racial/Ethnic Non-Minority Respondents

-.1

Gender

<u>APPENDIX E:</u>

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*.¹ 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 employee perceptions of overall organizational fairness related to distributive, procedural, and interpersonal justice. Organizational Justice is a broader outcome-based concept that encompasses D&I process-based effort evaluations made by U.S. federal agency employees.

Figure E1, which corresponds to Figure 3 of the manuscript, displays the baseline sets of elasticity estimates from six regression models (Models 1-6 in the manuscript) while Figure E2 corresponds to Figure 4 of the manuscript evaluating the heterogeneity in the relationship between status-group power imbalances and employee evaluations of agency D&I efforts by disaggregating responses by both gender and racial/ethnic agency personnel. Figures E3A and E3B further present the inspection of this relationship by disaggregating responses by non-supervisory respondents and supervisor respondents, respectively (Figures 5A and 5B in the manuscript). The results from the *Organizational Justice* measure are substantively identical to the findings reported in the manuscript, except on several occasions. First, the interaction/differential absolute SGPD effect between non-

¹ See Appendix C: Construction and Estimation of Latent Measures for both Evaluations of Agency D&I Efforts & Organizational Justice Dependent Variables) for additional details.

minority and minority respondents is significantly greater for *Organizational Justice* (2.02% elasticity coefficient estimate, p = 0.029) compared to *Diversity* (0.73% elasticity coefficient estimate, p = 0.432). Also, the interaction/differential absolute SGPD effect between non-minority and minority non-supervisory respondents is significantly greater for *Organizational Justice* (1.98% elasticity coefficient estimate, p = 0.087) compared to *Diversity* (0.39% elasticity coefficient estimate, p = 0.718). This suggests that minority nonsupervisory personnel have a more sanguine view of organizational justice in their agencies compared to non-minority non-supervisory personnel, as SGPD rises. Lastly, the evidence of the women-men *absolute* SGPD evaluation difference is somewhat stronger and more precise than reported here that is attributable to non-supervisory personnel in 'low-status' positions within federal agencies.





FIGURE E3A:







APPENDIX F:

Additional Sensitivity Analyses

Additional sensitivity checks in **Appendix F** evaluate the sensitivity of the SGPD model estimates when (1) omitting supervisory descriptive representation as a covariate [FIGURE F1, F2, F3A, and F3B], and (2) omitting 'extreme' above parity values of relative SGPD measures (e.g., relative SGPD measure for women > 1 or relative SGPD measure for racial/ethnic minorities > 1) [FIGURE F4, F5, F6A, and F6B].² Specifically, Figure F1 displays the absolute and relative SGPD elasticity estimates after omitting the supervisory descriptive representation measure in the statistical models (comparable with the right-hand panel of elasticity estimates in Figure 3 of the manuscript). Figure F2

² The omission of these above-parity SGPD values constitute an omission of 43,679 (1.74%) and 53,549 (2.13%) of observations in the gender and racial/ethnic minority models, respectively.

corresponds to **Figure 4** of the manuscript, graphically depicting the heterogeneous relationship between SGPD measures and employee perceptions of agency D&I efforts by different respondents based on gender and racial/ethnic minority status. Figures F3A and **F3B** show a more granular inspection of the relationship by further disaggregating the respondents by non-supervisory respondents and supervisory respondents, respectively (comparable with **Figures 5A** and **5B** in the manuscript). The relative SGPD elasticity estimates after omitting 'extreme' above parity values of relative SGPD measures are graphically displayed in Figure F4 (comparable with the two rightmost estimates in Figure 3 of the manuscript). The heterogeneous relationship between relative SGPD measures and employee evaluations of their agency D&I efforts by disaggregating responses by both gender and racial/ethnic minority personnel appears in Figure F5 (comparable with the right-hand panel of Figure 4 of the manuscript). Lastly, Figures **F6A** and **F6B** display the empirical patterns of this relationship by further disaggregating responses based on supervisory status (non-supervisory position versus supervisory position), which correspond to the right-hand panels of **Figures 5A** and **5B**, respectively. The results of these sensitivity analyses are substantively identical to those reported in the manuscript.

















APPENDIX G:

Conditional SGPD Effects Based on Social Identity Status of Agency Head [SGPD Covariate × Agency Head SIS]

We further test the heterogeneous conditional SGPD differential effects across social identity status (based on gender and racial/ethnic minority status) of the agency head. Figure G1 displays the relationship between absolute (Models 3-4 in the manuscript) and relative (Models 5-6 in the manuscript) SGPDs and employee evaluations of agency D&I efforts conditional on the social identity status of agency head based on gender and racial/ethnic minority status. A more granular inspection evaluating the heterogeneity in this relationship by disaggregating responses by within-identity 'out-group' status and between-identity 'in-group' status is graphically displayed in Figures G2A (out-group respondents) and G2B (in-group respondents), respectively. In most instances, these SGPD estimates do not systematically differ based on whether the agency head is a woman/minority versus a man/non-minority. The lone exceptions occur with respect to minority SGPDs within federal agencies, with agencies headed by a minority enhancing the relationship between absolute SGPD and employee D&I evaluations based on overall and non-minority 'in-group' assessments; agencies headed by a minority enhancing the relationship between relative SGPD and employee D&I evaluations based on minority 'outgroup' assessments; and agencies headed by women being associated with a reduction in the relative SGDP effect compared to men agency heads that can be attributed to women respondents.



FIGURE G2A: Predicting the Fostering of D&I within U.S. Federal Agencies (Disaggregated by 'Out' Group Respondent Identity: Elasticity Estimates and 95% CIs) [Conditional SGPD Effects across Social Identity of Agency Head] .3 0.1100.118 0.117 .2 0.176 0.1030.<u>0</u>93 0.099 0.078 0.040.1 ф 0.0240.003 0 -0.065 -.1 Absolute Status-Group Power Differential [SGPD] Relative Status-Group Power Differential [SGPD] Diamonds: Agency Head - Men/Racial, Ethnic Non-Minorities Circles: Agency Head - Women/Racial, Ethnic Minorities Squares: Difference between Gender/Racial, Ethnic Minority Status of Agency Head Gender Racial/Ethnic Minority 'Out' Group: Women Respondents, Racial/Ethnic Minority Respondents



APPENDIX H:

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 H**. 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 out-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 in-group respondents (men or racial/ethnic non-minority respondents).

Table H1 displays the pairwise mean differences in employee evaluations of D&I between in-group versus out-group respondents. Contrary to the expectation of social desirability bias, the test results reveal that the mean differences are all below zero, meaning that out-group respondents, both women and racial/ethnic minority respondents, have more negative views on their agencies' D&I efforts than in-group respondents. These results are consistent regardless of whether respondents are in different organizational environments with various levels of SGPDs (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 H1

Detween in-Group versus Out-Group Respondents					
(Social Desirability Bias Hypothesis: $\left[\bar{X}_{Out-Group} - \bar{X}_{In-Group} \ge 0\right]$)					
	All	Non–Supervisory	Supervisory		
	Respondents	Respondents	Respondents		
Low	-0.069	-0.063	-0.042		
LOW Abaaluta Waman SCDD	(-61.175)	(-47.473)	(-21.479)		
Absolute women SGPD	[0.0000]	[0.0000]	[0.0000]		
Madarata	-0.049	-0.043	-0.025		
Abaluta Waman SCDD	(-43.469)	(-31.959)	(-13.165)		
Absolute women SGPD	[0.0000]	[0.0000]	[0.0000]		
Uimh	-0.043	-0.032	-0.031		
nign Abaaluta Waman SCDD	(-34.117)	(-20.774)	(-15.711)		
Absolute women SGPD	[0.0000]	[0.0000]	[0.0000]		
Low	-0.114	-0.106	-0.108		
Absolute Racial/Ethnic	(-95.382)	(-76.280)	(-49.813)		
Minority SGPD	[0.0000]	[0.0000]	[0.0000]		
Moderate	-0.108	-0.101	-0.102		
Absolute Racial/Ethnic	(-75.530)	(-60.471)	(-39.185)		
Minority SGPD	[0.0000]	[0.0000]	[0.0000]		
Uimh	-0.124	-0.1178	-0.103		
пıgn	(-90.133)	(-70.548)	(-46.077)		

Pairwise Mean Differences in Employee Evaluations of D&I Between In-Group versus Out-Group Respondents

Absolute Racial/Ethnic Minority SGPD	[0.0000]	[0.0000]	[0.0000]
	-0.066	-0.055	-0.045
	(-56.960)	(-39.497)	(-22.784)
Relative Women SGPD	[0.0000]	[0.0000]	[0.0000]
	-0.052	-0.043	-0.036
Moderate	(-43.346)	(-29.721)	(-18.073)
Relative women SGPD	[0.0000]	[0.000]	[0.0000]
II: ah	-0.042	-0.038	-0.021
Hign Deleting Wenner CODD	(-36.535)	(-27.675)	(-11.164)
Relative women SGFD	[0.000]	[0.0000]	[0.000]
Low	-0.124	-0.112	-0.113
Relative Racial/Ethnic	(-93.523)	(-71.974)	(-47.649)
Minority SGPD	[0.000]	[0.000]	[0.0000]
Moderate	-0.103	-0.095	-0.098
Relative Racial/Ethnic	(-75.727)	(-60.190)	(-39.335)
Minority SGPD	[0.0000]	[0.0000]	[0.0000]
High	-0.112	-0.110	-0.094
Relative Racial/Ethnic	(-86.125)	(-70.590)	(-43.374)
Minority SGPD	[0.0000]	[0.0000]	[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.*

APPENDIX I:

Evaluating Potential Intersectionality SGPD Effects for Minority Women Employee D&I Evaluations

It is possible that women minority U.S. federal employees' evaluations of agency efforts at fostering D&I are more responsive to out-group SGPD effects compared to employees from other social identity groups (e.g., Cole 2009; Mügge and Erzeel 2016; Williams 2014). The possibility of intersectionality effects involving women minority U.S. federal employees' evaluations of U.S. federal agency D&I efforts are analyzed here by estimating regression models that interact such that women minority respondents and women SGPD measure of interest (i.e., Absolute SGPD, Relative SGPD), as well as corresponding models that estimate the interaction between women minority respondents and minority SGPD measure of interest. These findings from this analysis reported in **Figures I1**, **I2A**, & **I2B** uncover null findings in most instances, except that a positive differential is observed for women minority respondents with respect to the relative minority SGPD model specification – though such observed differences were effectively equal between non-supervisory and supervisory personnel. Specifically, both non-supervisory and supervisory women minority employees' evaluations of agency efforts at fostering D&I are more acutely responsive to power imbalances involving minorities within federal agencies. Taken together with the null findings associated with women minority respondents in relation to women SGPDs, these findings corroborate the manuscript findings relating to non-intersectionality insofar that minority women anchor on the lower proportion of minority employees holding status-group positions of authority as the basis of their evaluations, and do not make such differential assessments based on the relative proportion of women holding supervisory positions.








<u>APPENDIX J:</u>

Sensitivity of SGPD 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 SGPDs involving minority and non-minority agency personnel composition, while evaluations by race/ethnicity of respondents might be affected by SGPDs 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 SGPD effects by respondent's social identity group reported in the manuscript. **Figure J1** reproduces the model estimates appearing in **Figure 4** of the manuscript, except that the model specifications account for possible contagion or spillover effects between social identity groups noted above. The SGPD log-elasticity estimates from these alternative model specifications are substantively identical to those presented in the manuscript that do not account for cross-social identity group contagion effects. This pattern also holds when comparing the SGPD estimates among supervisory respondents in **Figure J2B** in relation to **Figure 5B** reported in the manuscript.

The alternative sets of estimates broken down by non-supervisory personnel respondents that appear in **Figure J2A** are substantively similar compared to analogous estimates reported in **Figure 5A** of the manuscript. The only discernible minor differences occur with slightly less precise estimates for non-supervisory respondents' Absolute SGPD effects for non-minority respondents (**Figure J2A**: p = 0.101, **Figure 5A**: p = 0.034) and minority respondents (**Figure J2A**: p = 0.078, **Figure 5A**: p = 0.018); and also Relative SGPD effects for both men non-supervisory respondents' Relative SGPD effects (**Figure**

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J2A: p = 0.053, Figure 5A: p = 0.041) and women non-supervisory respondents (Figure J2A: p = 0.052, Figure 5A: p = 0.037).



FIGURE J2A:



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