

THE EFFECTS OF PAY DISPERSION AND DEMOGRAPHIC SIMILARITY ON EMPLOYEE TURNOVER

Abstract

Scholars have long recognized that individuals compare their rewards to those received by similar others and that satisfaction is determined, in part, by perceptions of (un)fairness that arise from these comparisons. Extensive research has also found that individuals frequently select others as pay referents who share the same race and the same gender, suggesting that demographic similarity strongly affects equity perceptions. Leveraging this insight, we examine whether the proportion of others in one's work unit who are of the same race or gender moderates the relationship between horizontal pay dispersion and voluntary turnover. Based on a unique, single-firm sample of workers employed by a Fortune 50 organization, the results show that the relationship between pay dispersion and turnover is moderated by the degree of racial and gender similarity that workers share with work-unit peers, such that the positive relationship between pay dispersion and voluntary turnover becomes stronger when work-unit demographic similarity is higher. Supplemental analyses suggest that this pattern holds for males, females, and whites but not for non-whites. These analyses also provide additional empirical evidence that our findings most likely result from the propensity of males, females, and whites to compare themselves to same-category others.

Comparing one's outcomes to those of others is a basic human activity (Gartrell, 2002), and scholars have long recognized that satisfaction is not determined solely by the absolute value of one's rewards but also by their value relative to the rewards of others (Adams, 1963; Festinger, 1954). The tendency to make such social comparisons is frequently heightened in organizational settings where work is structured around interdependent tasks necessitating collaboration, cooperation, and interaction (Grant & Parker, 2009). Building on these insights, scholars have sought to better understand the consequences of the fact that workers are likely to compare their pay to that of their coworkers. Specifically, researchers have examined how pay dispersion, defined as differences in earnings among a group of individuals, affects individual- and group-level outcomes such as performance, motivation, and turnover (e.g., Carnahan, Agarwal, & Campbell, 2012; Shaw, Gupta, & Delery, 2002). This research has frequently emphasized that people tend to compare themselves to those who work in the same job (Kepes, Delery, & Gupta, 2009), in the same work unit (Bloom & Michel, 2002), and for the same firm (Wang, Zhao, & Thornhill, 2015), as these boundaries are commonly thought to be an important determinant of worker earnings and to influence the amount of information individuals have to make comparisons (Nickerson & Zenger, 2008).

Yet, a major tenet of social-comparison theory is that the most desirable standard for comparison is others who share common attributes; therefore, individuals are assumed to generally prefer comparing themselves to similar, rather than dissimilar, others (Kruglanski & Mayselless, 1990). Notably, studies conducted both within and outside organizational settings have routinely demonstrated that demographic similarity profoundly affects the choice of referents, that is, those to whom individuals compare themselves (Buchanan, 2008; Major & Testa, 1989). Underpinning this research is the idea that people develop stronger connections to

and, thus, obtain more information about demographically similar others (Lawrence, 2006). Additionally, individuals may expect demographically similar others to share certain experiences and attributes that relate to earnings, which makes these similar individuals a more appropriate pay referent choice (Goethals & Darley, 1977).

Although studies frequently draw on research on social comparisons to examine how pay dispersion affects employee attitudes and behaviors (e.g., Trevor & Wazeter, 2006), this research has been less attentive to the referent-selection process within groups. As a result, studies have not examined the possibility that factors such as demographic similarity that are known to affect referent choices may also affect employee responses to pay dispersion. We believe this omission is problematic, in part, because demographic diversity has increased dramatically within U.S. firms over the past several decades (BLS 2016). How managers determine the most efficient way to distribute wages in light of this shift has both conceptual and practical importance. While current theory provides insights into how employees in general are likely to respond to compressed versus dispersed pay distributions, if those responses vary based on the demographic characteristics of one's work setting, the predicted outcomes may vary across groups and individuals within those groups. Incorporating work-unit demographics into the study of pay dispersion therefore allows us to more accurately reflect the dynamics facing managers of contemporary firms as they determine the most effective way to distribute wages.

In this study, we take an initial step toward addressing this omission by examining how gender and racial demographic similarity affect employee responses to horizontal pay dispersion. In doing so, this study contributes to recent efforts to more carefully explore the conditions under which employees may respond differentially to horizontal pay dispersion (e.g., Shaw 2015). Our main argument is that the degree of demographic similarity that individuals share with others in

their work unit will affect their reaction to pay dispersion, as evidenced by voluntarily exiting the firm. We focus on voluntary turnover because it is an important outcome of interest in studies of pay dispersion (e.g., Messersmith, Guthrie, Ji, & Lee, 2011) and organizational demography (e.g., Sorensen, 2004), which makes it an appealing dependent variable given our theoretical interest in integrating these two literatures. It is also an important practical outcome given that it is often both disruptive and costly for employers (Hausknecht & Holwerda, 2013).

In support of our main argument, we draw upon existing theory to contend that referent selection processes are heavily influenced by demographic similarity, which will subsequently affect how individuals respond to levels of pay dispersion in their groups. Both social-identity and similarity-attraction theories (Berscheid & Walster, 1978; Tajfel, 1978) suggest that individuals are more likely to create referent groups composed of demographically similar others. Individuals are also more likely to both proactively seek out (Lawrence, 2006) and passively obtain (Gartrell, 2002) information from members of their referent group; thus, they are less likely to have information about the pay of dissimilar others. We expect that workers will have greater awareness of the levels of pay dispersion in work units where they are demographically similar to a greater number of others in those units. Thus, we predict that in work units with higher levels of pay dispersion, workers will be more likely to voluntarily exit the firm when they are more demographically similar to others in their unit.

To test our hypotheses, we use five years of personnel records covering over 2,500 work units in a large U.S. health-services firm. Whereas much of the research on pay dispersion has relied on data on sports teams (e.g., Trevor, Reilly, & Gerhart, 2012), top-management teams (e.g., Bloom & Michel, 2002), and samples of specific professions (e.g., Kepes et al., 2009), our uniquely detailed data provide data on pay, race, sex, performance, and work-unit membership,

among other categories, for numerous professions within a single firm. This allows us to conduct, to our knowledge, the first study examining how pay dispersion and demographic similarity interact to shape individual-level turnover. The data also enable us to examine whether demographic diversity itself may be a main cause of pay dispersion as well as to run several robustness checks. To elucidate our proposed mechanism further, we supplement our field data with additional data from an online survey of professional workers and an online vignette study that help us better understand the role of demographic similarity on referent selection processes.

The results largely support our predictions. We find a significant and positive effect of the interaction of pay dispersion and demographic similarity on voluntary turnover such that a worker is more likely to voluntarily exit the firm in higher-dispersion work units when more individuals in that unit are demographically similar to him or her. Our supplementary analyses reveal that while this pattern of results holds for males, females, and whites, it does not hold for non-whites. The analyses also provide evidence that our findings likely result from the proclivity of men, women, and whites to compare themselves to demographically similar others.

By showing that the degree of demographic similarity moderates the relationship between horizontal pay dispersion and individual turnover, our study makes several contributions. First, we extend prior research by providing evidence that how individuals react to pay dispersion depends on work-unit demography, a relationship that appears to be driven by who employees select as pay referents. In so doing, our study answers calls to examine how workforce composition affects employee responses to pay dispersion (Shaw, 2014) and social-comparison processes more generally (Goodman & Haisley, 2007). Additionally, to better reflect the challenges and opportunities faced by managers of an increasingly diverse U.S. labor force, researchers must more closely attend to the various ways in which diversity affects workplace

dynamics. By integrating research on referent selection dynamics (e.g., Lawrence 2006, Major and Testa 1989) with the pay dispersion literature, our research adds nuance to existing pay dispersion theory by highlighting that demographic similarity shapes pay-comparison processes, resulting in differing reactions to pay dispersion within work-unit boundaries. We consider additional conceptual and managerial implications for research on organizational demography, turnover, and pay transparency in the discussion section.

HORIZONTAL PAY DISPERSION, DEMOGRAPHIC SIMILARITY, AND TURNOVER

Prior to discussing the theoretical arguments linking pay dispersion, demographic similarity, and turnover among workers, it is important we define the constructs of interest in our study. Our measure of horizontal pay dispersion focuses on differences in pay among workers in the same work unit, which in our setting comprises workers occupying similar jobs at the same level of the firm. We focus on horizontal pay dispersion because when comparing their rewards to those of others, individuals tend to choose referents that work in similar jobs at a similar level in the hierarchy, as such referents are likely to have comparable qualifications and experiences. Second, our measures of demographic similarity reflect the degree to which individuals are similar to others in their work unit in terms of gender or race. We focus on demographic similarity because it has been shown to play an important role in the referent-selection process by fostering social interaction, communication, and affiliation (Lawrence, 2006).

Finally, our outcome of interest is individual turnover decisions. Research on voluntary turnover typically attributes individual decisions about exiting an organization to three interrelated factors: (a) individuals' perceptions of the desirability or attractiveness of their current work situation (generally operationalized as job satisfaction), (b) the perceived ease of movement out of the focal organization, and (c) the availability and attractiveness of external

alternatives (Messersmith et al., 2011: 458). Within this research tradition, we focus primarily on the first factor, individuals' perceptions of the desirability of their situation, in terms of pay relative to that of their work-unit peers and how that is affected by the degree of demographic similarity the individual shares with those peers.

Horizontal Pay Dispersion and Voluntary Turnover

Motivation theories in psychology and economics suggest that higher levels of pay dispersion may improve worker motivation, and thereby reduce dysfunctional turnover, by tightening the linkages between effort and performance, on the one hand, and outcomes and outcome perceptions, on the other (Jenkins, Mitra, Gupta, & Shaw, 1998). Yet, these potential benefits are contingent on a worker's belief that dispersion is driven by legitimate reward practices (e.g., pay for performance), that individuals have a clear line of sight between effort and outcome, and that pay differentials are meaningful (Shaw, 2014). These assumptions frequently do not hold within organizations because many workplaces lack objective, observable, and nonsocial standards for performance assessments (Larkin, Pierce, & Gino, 2012) and because individuals tend to overestimate their abilities (Weinstein, 1980). Hence, even if an organization intends to be fair, paying individuals differently for the same job often triggers perceptions of inequity (Downes & Choi, 2014; Gomez-Mejia, Berrone, & Franco-Santos, 2010).

Prior research has argued that when workers perceive that organizational rewards are distributed inequitably, they engage in actions that impose costs on the firm (Nickerson & Zenger, 2008). For example, invidious social comparisons have been found to lead to reductions in worker satisfaction (Hagerty, 2000), effort (Cohn, Fehr, Herrmann, & Schneider, 2014), and collaboration (Pfeffer & Langton, 1993), as well as to increases in worker deception and dishonesty (Edelman & Larkin, 2015). Germane to our study, research has also generally

demonstrated a positive relationship between horizontal pay dispersion and voluntary turnover (e.g., Kacperczyk and Bazzazian 2016, Wei 2016, but see Powell et al. 1994). In a large, multi-firm study, Riddell (2011) found that pay dispersion was positively correlated with employee quit rates. Similarly, studies have found that top-management team members were more likely to voluntarily exit their organization when the pay dispersion among team members was higher (Bloom & Michel, 2002; Messersmith et al., 2011). Moreover, many of the attitudinal reactions to horizontal pay dispersion, such as decreased job satisfaction and decreased organizational commitment (e.g., Trevor & Wazeter, 2006), are established antecedents of voluntary turnover (Heavey, Holwerda, & Hausknecht, 2013).

Recent research has added nuance to the general finding that employees react negatively to horizontal pay dispersion by examining contextual variables affecting this relationship. Two main insights have emerged from this work. First, employees respond differently to pay dispersion based on perceptions of the factors creating the dispersion; for example, reacting less negatively when dispersion is seen as more legitimate. Supporting this argument, Kepes et al. (2009) found that employee performance was higher in groups where pay dispersion was attributed to performance differentials than in groups where pay dispersion was attributed to political factors. Second, researchers have examined how one's status in the income and performance distributions affects worker perceptions and turnover. Studies have generally shown both high earners and high performers to be generally more accepting of higher levels of pay dispersion, while low earners and low performers generally react negatively to it (e.g., Carnahan et al. 2012; Trevor and Wazeter, 2006).

We complement these efforts to identify contingency factors that affect people's responses to horizontal pay dispersion. We also extend this prior work by developing a set of

arguments to predict that workers' responses to horizontal pay dispersion vary based on the demographic composition of their work units. Specifically, we contend that the degree of demographic similarity is likely to affect who workers compare themselves to at work and thus how much information they likely possess about their peers' pay.

Demographic Similarity, Referent Selection, and Pay Information

Before individuals can assess the relative value of their rewards, they must first identify a referent (or referents) with whom to compare. Based on the foundational insights of Festinger (1954), prior research on pay dispersion has emphasized that individuals compare themselves to others on dimensions commonly thought to directly affect earnings. Within organizations, people therefore tend to compare their rewards to others working in the same job (Kepes et al., 2009), working in the same work unit (Bloom & Michel, 2002), and those who are similar in (perceived) performance (Martin, Suls, & Wheeler, 2002). However, social-comparison research has emphasized that similarity of related attributes, or surrounding dimensions, also affects referent choices (Crosby, 1976; Wood, 1989). Comparing oneself to others based on similarity of related attributes is common because people tend to have more information about and share experiences with these similar others, and this information and experiences may help shape their pay expectations (Gibson & Lawrence, 2010; Goethals & Darley, 1977).

When selecting referents, workers are likely to view demographics, including gender and race, as particularly salient related attributes. Social-categorization theory argues that people construct social identities by using salient social categories, such as demographic characteristics (Tajfel, 1978), and define others as similar or different from themselves (Hogg & Terry, 2000). That is, employees who are demographically similar are more likely to view themselves as members of the same social category. The importance of membership groups to self-identity may

result in an individual's desire to assess his or her ability and rewards relative to those within that group (Arnkellson & Smith, 2000). Thus, the resulting in-groups and out-groups that arise from social categorization are thought to be a key dimension for how individuals select others with whom they compare themselves (Goodman, 1977; Sorensen, 2004).

Similarity-attraction arguments furthermore suggest that group composition affects the creation of friendship ties within groups (Byrne, 1971), which, in turn, shape the information that is shared among different group members. Although people vary in their propensity to have relationships with members of different demographic groups, evidence shows that across widely varying types of relations, such linkages are rare in comparison to within-group ties (Ibarra, 1995; Wimmer & Lewis, 2010). For example, data from the General Social Survey reveal that only 15% of respondents reported discussing an important matter with a person of another race (McPherson, Smith-Lovin, & Brashears, 2006).¹ Moreover, while individuals may at times proactively seek out information about others to engage in social comparisons, such comparisons frequently occur from the “unbidden byproduct of social relations through personal contacts” (Gartrell 2002, p. 166). Because people tend to develop close ties to and communicate with demographically similar others (Berscheid and Walster 1978, Ibarra 1992) and because much information flows through close person-to-person associations (Krackhardt 1992), social comparison processes are profoundly affected by demographic factors.

Both social-categorization and similarity-attraction arguments, therefore, emphasize that a key factor driving the incidence of in-group social comparisons is opportunities for contact with others sharing a salient characteristic such as gender or race. And although some exceptions

¹ When there are few (or no) individuals in a work unit sharing the same demographic characteristics as the focal worker, the focal worker will have fewer opportunities to make comparisons within his or her immediate work unit (Ibarra 1995). Therefore, comparisons are likely to span across work units, and the effect of work-unit pay dispersion is thus likely to be weaker.

exist (e.g., Davison, 2014), research on referent selection has generally found a preference for same-sex and same-race referents. For example, when given an opportunity to obtain pay data about cross-sex others in contexts where sex was ostensibly unrelated to performance, subjects overwhelmingly expressed a preference for information about same-sex others (Major & Testa, 1989). When women were presented with successful targets of both sexes, they preferred to compare themselves with the same-sex target and saw female targets as potential role models (Buunk & Van der Laan, 2002). Gibson and Lawrence (2010) found that although men and women do include cross-sex others as career referents, both men's and women's sets of career referents exhibit a significantly larger proportion of same-sex others (see also Buchanan 2008, Moore 1991). Lawrence (2006) found a comparable pattern for same-race referents as well.

It is important to note, however, that these arguments do not imply that workers never compare themselves to or never seek information about dissimilar others. Concerns about and charges of wage discrimination, for example, necessarily require individuals to have information about the pay of dissimilar others. However, the existing theory and empirical evidence suggest that even if cross-category social comparisons and cross-category information sharing are more likely to occur than in the past, they are nevertheless likely to happen much less frequently than within-group comparisons and information sharing (e.g., Gibson & Lawrence, 2010; Shelton & Richeson, 2005; Towles-Schwen & Fazio, 2003). Given that demographic similarity should affect who individuals compare themselves to within their work unit, we expect that when more coworkers in a work unit share the same demographic characteristics as the focal individual, the impact of pay dispersion on turnover will be greater. In formal terms, we expect the following:

Hypothesis 1: *Individuals in work units with higher levels of pay dispersion will be more likely to voluntarily exit the firm if a higher proportion of others in their work unit share the same (a) gender or (b) race.*

DATA

Sample

We test our hypotheses using five years of personnel records covering all employees in nearly every job at HealthCo, a large U.S. health-services corporation.² The dataset consists of 65,818 annual observations of 36,021 individual employees organized into 2,656 work units, from 2008–2012. Numerous characteristics make these data particularly amenable to testing our hypotheses. The data contain detailed information on each individual’s job, location, and supervisor in a given year as well as his or her total annual wage compensation, annual performance ratings, and a range of demographic characteristics, including sex and race. This information enables us to clearly identify distinct work units within HealthCo and to run several robustness checks. Although concerns about generalizability affect nearly all studies that rely on data from a single firm, the sheer variety of jobs included in our analyses helps to minimize this issue. The employees in our sample are distributed across more than 30 functions, 515 jobs, and 51 states and U.S. territories. Moreover, the organization of work within HealthCo and the process through which wages are determined mirror other large U.S. organizations.

It is important to note that HealthCo did not attempt to prevent employees from discussing their pay with others; the firm has no formal pay-secrecy policy, and our conversations with managers and HR personnel did not indicate that managers discourage workers from discussing their pay. Even if this were the case, such efforts are likely to be, at best, only partially effective. Pay-secrecy policies are typically not legally enforceable, and it is unclear how effective such policies are in preventing workers from uncovering information about

² The only two sets of jobs not included in our dataset are those located in the C-Suite, which represent less than 0.01 percent of all jobs at HealthCo, workers who are not part of a work unit (e.g., physicians in specialized roles; 4.1% of all jobs) and job where workers are on fixed-term contracts (generally less than six months). For example, HealthCo hires substantial numbers of workers every year during open-enrollment periods.

their peers' wages (Belogolovsky, Bamberger, Alterman, & Wagner, 2016). Thus, while pay is not transparent at HealthCo, workers have the opportunity to find out about the pay of their colleagues through conversations with others and are not systematically discouraged from doing so. To the extent that workers are unaware of others' pay, we should expect work-unit pay dispersion to have no effect on turnover decisions, thus biasing against us finding support for our hypotheses.

Dependent Variable

Our dependent variable is voluntary turnover. We construct a dummy variable that takes a value of 1 if a worker exits HealthCo voluntarily during a calendar year and 0 otherwise. Because our individual- and group-level measures are calculated using administrative records from January of each year, we examine the effect that these covariates have on turnover during the same calendar year.

Independent Variables

Pay dispersion. We operationalize *horizontal pay dispersion* by calculating the coefficient of variation of pay within a work unit, defined at HealthCo as a group of employees who occupy the same role, share the same immediate supervisor, and are located within the same department. Although workers in different roles may be assigned to the same department within the organizational hierarchy, workers in the same role tend to work together and have shared responsibilities, whereas workers in different roles are less likely to regularly interact and have very different job responsibilities.³ HealthCo provided individual-level pay data for January of

³ Although our definition of a work unit accurately reflects how managers and workers think of work units at HealthCo, we also ran all of our analyses using two alternative definitions. The first relaxed the need to share the same immediate supervisor (i.e., workers who occupied the same role and department but had different supervisors were considered part of the same unit). The second relaxed the need to occupy the same role (i.e., workers who shared the same supervisor but occupied different roles were considered part of the same unit). Neither alternative resulted in a substantial change in unit composition, and there were no qualitative differences in our findings.

each year, as changes in annual compensation for the vast majority of employees take effect in that month. This measure reflects total annual compensation, including both salary and expected bonus payments, for the calendar year.⁴ The coefficient of variation is calculated by dividing the standard deviation of pay within a group by the mean, and has been a frequently used measure in studies of pay dispersion (e.g., Pfeffer & Langton, 1993), due, in part, to the fact it is generally seen as conceptually easier to understand and the results easier to interpret than other measures of dispersion (Allison, 1978).⁵

Gender and race similarity. Because our theory leads us to expect that in-group and out-group dynamics affect employee responses to pay dispersion, it is important to use a measure that reflects the prevalence of in-group membership. We use the proportion of the work unit that is of the same gender as the focal worker as our measure of *gender similarity* and the proportion of the unit that is of the same race as the focal worker as our measure of *race similarity* (Sorensen, 2004). Because we do not have enough demographic variance in our work units to examine gender and race together, we look at the two measures as independent constructs.⁶

The possibility that work-unit pay dispersion is an outcome of the gender and/or racial diversity of work units poses a potential problem if supervisors at HealthCo systematically hold some preference for or bias against workers of a certain gender and/or race. Such bias may independently affect the probability of worker turnover while also affecting work-unit diversity and pay dispersion, creating a spurious relationship between dispersion and turnover. We have reasons to believe that this possibility is unlikely in our setting. First, although research has

⁴ We are unable to separate salary and expected bonus payments. However, salary accounts for the vast majority of compensation for most workers at HealthCo.

⁵ We also ran all of our analyses using the Gini index and the Theil index. The three measures were highly correlated ($p > 0.82$); thus, as expected, the overall pattern of results was similar.

⁶ One possible concern with this approach is that we are double counting individuals, as every worker has a gender and a race code. Thus, we analyzed models including gender (race) similarity without our measure of race (gender) similarity. The results are consistent with those presented below and are available upon request.

consistently found pay gaps between men and women and between whites and non-whites, these gaps are most readily explained by women and minorities being sorted into lower-paying industries and occupations rather than by differential pay for identical work (e.g., Blau & Kahn, 2016). By focusing on pay dispersion within units of workers holding the same jobs, we minimize the risk that horizontal pay dispersion is a result of demographic composition. Second, as a government contractor, HealthCo faces pressure to proactively address discrimination concerns of any kind, as the firm is subject to audit from the Office of Federal Contract Compliance Programs. HR professionals within the firm emphasized that they conduct various internal audits and other reporting procedures to identify and address discrimination.

Additionally, we observe a relatively small correlation between work-unit levels of pay dispersion and work unit-level measures of gender diversity ($r = 0.02$) and racial diversity ($r = 0.08$).⁷ We also tested whether gender and race diversity were significant predictors of pay dispersion and found no evidence of such a relationship. Although explicit and implicit biases likely still exist, the evidence suggests that they are likely not systematic enough to explain the pattern of results we observe. Any instance of supervisor bias would also likely work against us finding support for our hypotheses.

Control Variables

An important concern with observational studies of this type is the potential for omitted variables to create spurious correlations between the independent and dependent variables. Although such problems can be solved using instrumental variables, such variables are often difficult to identify in practice (Hamilton & Nickerson, 2003) and were not available for this study. One strength of our data, however, is their level of detail, which allowed us to control for

⁷ To measure diversity, we calculated Blau's index of gender and racial diversity.

many potential omitted variables. Prior pay-dispersion research has argued that the inclusion of control variables such as performance and tenure that likely impact outcomes such as turnover also help to explain levels of pay dispersion. Thus, analyses including these types of control variables are thought to more accurately provide a measure of residual, or unexplained, dispersion (Gerhart & Rynes, 2003). Unexplained dispersion is thought to have a particularly deleterious effect on employee reactions because it is believed to be the product of less legitimate factors such as managerial favoritism (Trevor et al., 2012).⁸ To address these considerations, we include models examining the effects of the predicted covariates with and without the control variables, as this approach is the simplest and most effective way to balance concerns about omitted variables with concerns that the inclusion of certain controls results in residual pay dispersion (Kepes et al., 2009).

Numerous individual and unit-level variables may affect the relationship between turnover and the interaction between pay dispersion and demographic similarity. At the individual level, both pay and performance have been shown to affect employee responses to pay dispersion (e.g., Carnahan et al. 2012, Shaw 2015). We therefore include as controls the natural logarithm of an employee's annual *salary* and, *salary rank*, which indicates the relative standing of one's pay in comparison to his or her work-unit peers. The measure is coded such that a smaller value reflects being paid more than one's work unit peers. In models available upon request, we operationalize salary rank within one's gender and race category, and the results using these alternative measures are similar to those presented below. We also include variables

⁸ Downes and Choi (2014) challenge whether such a distinction is useful from the perspective of workers, as seemingly legitimate factors that may help explain worker pay may not affect perceptions of worker performance. Additionally, making distinctions between explained and unexplained pay dispersion can also be challenging, as indicators of performance are often based on subjective assessments that can be influenced by political and other factors unrelated to actual performance (Conroy et al. 2014). In fact, Shaw (2014) suggests that if performance is determined subjectively, then dispersion due to performance may elicit a negative response from workers.

indicating whether an employee was a *top performer* or a *bottom performer* in a given year (with average performer as the omitted category).⁹

We control for gender by including a dummy variable for *female*, where male is the omitted category. We also include a series of dummy variables to control for racio-ethnicity: *Black*, *Hispanic*, *Asian*, and *other minority*, where white is the omitted category. Although HealthCo does not include years of education or the highest degree completed in its personnel records, to account for workers' human-capital differences we include measures of *age*, *age-squared*, *firm tenure*, and *firm tenure-squared*. We included dummy variables indicating whether the employee and direct supervisor are of the same gender (*supervisor same gender*) and the same race (*supervisor same race*), as research has found that performance evaluations and turnover decisions are affected by the demographic match between a worker and his or her supervisor (Castilla, 2011). We also include a series of job-category dummy variables to control for job type and level. HealthCo groups jobs into fifteen distinct sub-categories, with each sub-category consisting of jobs at the same hierarchical level and with similar responsibilities.¹⁰

At the work-unit level, because it may be easier for individuals in smaller groups to obtain information about others, we also control for *work-unit size*, which is the natural log of the

⁹ Employees at HealthCo receive an annual rating that reflects their performance across eight job-specific competencies. Their overall competency rating reflects the average score across these competencies, resulting in a single continuous measure between 1 (not contributing) and 4 (fully contributing). As in most organizations, the narrow range of scores makes it difficult to make clear demarcations among many individuals in a group. Managers and employees at HealthCo reported that they make a clear distinction between employees receiving a 3.5 or above (considered the very top performers) and 2 or below (considered the poorest performers) but that there was little meaningful difference among those in the middle (considered average performers). Our measure therefore accurately reflects the way employees interpret their performance rating (as a top, average, or poor performer). We ran analyses using continuous competency scores, and the results are similar to those presented below.

¹⁰ Entry-level (non-exempt/hourly) jobs are divided into four sub-categories: (1) operations support, (2) administrative support, (3) specialists and technicians, and (4) team leads. Mid-level managerial roles are divided into six sub-categories: (1) analysts and facilitators, (2) consultants, (3) strategic consultants, (4) front-line supervisors, (5) sales/market managers, and (6) unit managers. Director roles are divided into three sub-categories: (1) sales/market directors, (2) unit directors, and (3) sales vice presidents. Executive (non-C-Suite) jobs are divided into two sub-categories: (1) market leaders and (2) senior vice president. The category descriptors have been slightly altered to preserve HealthCo's anonymity.

number of members in each work unit. Additionally, because the average pay of a work unit may affect the relationship between pay dispersion and voluntary turnover, we control for the natural log of *work-unit mean salary*. We include a measure of *firm-tenure dispersion*, as it may affect both pay dispersion and individual turnover decisions (Pfeffer & Moore, 1980). As with pay dispersion, we calculate this measure as the coefficient of variation of worker tenure within each unit. We include annual measures of *county unemployment* provided by the Bureau of Labor Statistics, in addition to year dummies to account for yearly fluctuations in the external labor market. All continuous variables were grand-mean centered.

Table 1 provides means, standard deviations, and correlations for the main variables in the analysis. We checked for possible multicollinearity in our model by conducting a Variance Inflation Factor (VIF) test on a logit regression with the full complement of controls. The maximum VIF score obtained for our independent variables was 2.32, and the overall mean VIF was 5.32, indicating that multicollinearity was not a concern (Kennedy, 2003).

[--- Insert Table 1 about here ---]

METHODS AND RESULTS

In this study, the unit of analysis is the individual, and the unit of observation is the individual-year. We used a cross-classified random-effects logit model (CCREM) to account for both the longitudinal and hierarchical nature of our data. Because we have observations nested within individuals and individuals nested within units, data such as ours are often modeled using a nested three-level model, with occasions as the level 1 factor, individuals as the level 2 factor, and units or groups as the level 3 factor. However, because individuals at HealthCo may change work groups from year to year as a result of promotions, transfers, and reorganizations, our data are best described as having partially crossed grouping factors for our random effects. That is,

because workers may work in different units in different years, they are not fully nested within units. Conversely, because every worker is not observed within each work unit, these factors are not completely crossed. A CCREM allows us to account for the clustering of observations within both individuals and work units, while recognizing that the data are neither fully nested nor fully crossed (Shi, Leite, & Algina, 2010). Recent work has suggested that a CCREM is preferable to using a nested three-level model for data such as ours, as a nested three-level model may downwardly bias the standard errors, potentially leading to type-1 errors (Lemmerer, 2016).

The results of our main analyses are listed in Table 2. Model 1 measures the effects of pay dispersion, gender similarity, and racial similarity on voluntary turnover, with no control variables except for year and job dummies. Models 2 and 3 included the gender and race interaction terms, respectively. Models 4 through 6 mirror those of models 1 through 3 but also include all of our control variables.

Models 1 and 4 reveal a significant and positive relationship between horizontal pay dispersion and turnover. To provide some sense of the magnitude of this effect, using the results from model 4 and holding all covariates at a fixed value, we see just over 1% increase in the odds of voluntary exit for a one-unit increase in pay dispersion. When pay dispersion is held at its mean value, the average predicted probability of voluntary exit is 5.3%. A one standard-deviation increase in pay dispersion increases the average predicted probability of voluntary exit to 5.8%. As a point of comparison, the baseline turnover in Riddell (2011) was nearly 11%, and he found that a 1.5 standard deviation from the mean increase in pay dispersion raised the quit rate by 2 to 2.4 percentage points. Across models, we also see a negative and significant relationship for the main effect of racial similarity on turnover, while the main effect of gender similarity is not significant.

Hypothesis 1a predicted that gender similarity would moderate the relationship between pay dispersion and voluntary turnover such that when pay dispersion is higher, individuals are more likely to exit the firm when there is a higher proportion of same-sex others in their work unit. In support of hypothesis 1a, models 2 and 5 reveal a positive and significant relationship between voluntary exit and the interaction of pay dispersion and gender similarity. Hypothesis 1b predicted that turnover would be higher when pay dispersion was higher and individuals were in work units with a higher proportion of same-race others. This is supported by positive and significant interaction terms in models 3 and 6.

[--- Insert Table 2 about here ---]

To gain more insight into the interaction effects, we first plotted the significant interactions based on models 5 and 6 in Figure 1. We also followed Aiken and West's (1991) procedure and conducted simple slope tests for significant interactive terms. We split the gender- and race-similarity variables into two groups, low (one standard deviation below the mean) and high (one standard deviation above the mean), and estimated the effect of pay dispersion for both levels for both similarity measures. We find that pay dispersion does not predict worker turnover when gender similarity (simple slope $b = 0.014$, $p > 0.10$) or racial similarity (simple slope $b = 0.003$, $p > 0.10$) is low, but it does when gender similarity ($b = 0.047$, $p < 0.001$) or racial similarity ($b = 0.37$, $p < 0.001$) is high.

[--- Insert Figure 1 about here ---]

Several control variables are related to voluntary exit in the manner we would expect from prior research. Compared to average performers, workers rated as top performers are less likely to leave the firm, whereas bottom performers are more likely to leave. Salary also has an inverse relationship with voluntary exit. Older employees are also more likely to leave the firm,

although there is a curvilinear effect of tenure on turnover. Workers employed in counties with higher rates of unemployment are also less prone to leave the firm.

Robustness Tests

Within and between dispersion. We contend that, because workers are likely to compare themselves to demographically similar others, they will respond more strongly to within- than to cross-category pay differentials. In an additional test of hypothesis 1, we therefore expect to find that within-group pay dispersion will have a larger effect on turnover decisions than will between-group dispersion. To test this, we first separated our overall measure of pay dispersion into its within- and between-group components, by partitioning overall pay dispersion into measures of within-sex/race and between-sex/race pay variance. We then included both measures in a set of cross-classified random-effects logit models predicting turnover, as shown in Table 3. Consistent with our theory, the results reveal that both within-gender (model 1) and within-race (model 2) pay dispersion had positive and significant effects on turnover, while neither between-gender nor between-race pay dispersion had a significant effect. These findings suggest that in-group pay differentials are a more salient factor affecting employee responses to pay dispersion than are out-group differentials, and increase our confidence that in-group comparisons are driving our results.

[--- Insert Table 3 about here ---]

Split-sample analysis. Prior research has found evidence that whites and males are more likely to have homophilous workplace ties than are non-whites and females (see McPherson et al., 2006), and there may be reasons to expect that traditionally disadvantaged groups, such as women and non-whites, will be particularly sensitive to cross-category pay differences (Dovidio, Gaertner, & Saguy, 2009). Therefore, we also ran our models after disaggregating our sample

into gender (male and female) and four race (white, Black, Hispanic, and Asian) categories, to determine whether our predicted relationships are consistent across demographic groups. In Appendix A, we include a table of descriptive statistics for each of the sub-samples we analyze. The results of our split-sample analysis are presented in Table 4. The interaction between pay dispersion and sex similarity is positive and significant for both males (model 1) and females (model 2), and Chow tests reveal no statistically significant difference between the estimates for the interaction terms across models.¹¹ The interaction between pay dispersion and racial similarity is positive and significant for whites (model 3), but is not significant for Blacks, Hispanics, or Asians (models 4 through 6). We discuss the split-sample results below.

[--- Insert Table 4 about here ---]

Supplemental Analyses

We theorized that referent selection processes should affect how the proportion of demographically similar others in one's work unit affects individual responses to pay dispersion. A challenge in using observational data of this type, however, is that it can often be difficult to isolate and test the purported mechanisms directly. Indeed, directly measuring whom individuals select as referents and reactions to differences between demographically similar versus dissimilar others in our context is not possible given our field setting. Although this limitation is present in most field studies of social comparisons (e.g., Obloj & Zenger, 2017) and in field studies of pay dispersion (e.g., Shaw, 2015), we nevertheless conducted a survey and a vignette study on samples of working professionals to more closely examine whether the results presented above can be attributed to the selection of pay referents. Although previous research has consistently

¹¹ In Table 4, we show the results of our split-sample analyses in different models. To conduct the Chow test, however, we had to estimate these effects in a single model by creating a dummy variable for each sub-population (e.g., males, females) and interacting these dummy codes with each of the covariates in the model. The results are identical, but presenting the models separately was the most effective way to display the estimates.

found that individuals tend to select same-race and same-sex others as referents (e.g., Buchanan 2008, Lawrence 2006), given the shift toward a more demographically diverse workforce (BLS 2016) and the more prominent role of pay disparities in the national discourse (at least in the United States), we explored whom working professionals select as referents in these two studies.

Referent selection. To better understand who employees are likely to select as pay referents, we used the Qualtrics platform to conduct an online survey of 525 working professionals, asking participants to list the first names of up to five individuals with whom they compare themselves at work, followed by a series of follow-up questions about their referents. Further details on the survey methodology, summary statistics, and additional analyses can be found in Appendix B. A comparison of means tests from the survey results reveals that men selected a higher proportion of same-sex others ($M = 73.12$, $SD = 1.70$) than cross-sex others ($M = 26.88$, $SD = 1.70$) as referents; $t(253) = 13.57$, $p = 0.000$. Female participants also selected a higher proportion of same-sex others ($M = 69.73$, $SD = 1.77$) than cross-sex others ($M = 30.27$, $SD = 1.77$) as referents; $t(272) = 11.16$, $p = 0.000$. We also found that whites selected a higher proportion of same-race others ($M = 83.23$, $SD = 1.25$) than cross-race others ($M = 16.77$, $SD = 1.25$) as referents; $t(302) = 26.53$, $p = 0.000$. However, non-whites selected a higher proportion of cross-race others ($M = 68.82$, $SD = 2.20$) than same-race others ($M = 31.18$, $SD = 2.20$) as referents; $t(223) = 8.57$, $p = 0.000$. These findings are robust to the inclusion of several controls, including age, education, income, work-unit size, and the demographic composition of the work unit, among others, in a set of ordinary least squares regressions (see Appendix B).

To address concerns that our survey results are influenced by some unobserved factor that affected people's referent choices, we also ran an online vignette study. We asked participants to envision themselves working in a corporation and in an effort to understand their

next year's salary, participants were allowed to select with whom they would like to compare their pay from a list of four male and four female names.¹² To simulate the realism of these conversations, participants were allowed to select as few as none or as many of these eight coworkers as they wished, but they had to do so one at a time. The full details of the study and the results are available in Appendix C, and consistent with our survey results, the findings reveal both men and women are significantly more likely to select same-sex pay referents.

Consistent with our theory, the two studies above reveal that both males and females tend to select same-sex others as pay referents. The survey results also show that whites were significantly more likely to select same-race others as referents, although the results also revealed that non-whites were significantly more likely to select cross-race others as pay referents. These results offer a potential explanation for why our split-sample results (Table 4) for HealthCo workers held for whites, males, and females but not for non-whites. Specifically, whites, males, and females are more likely to identify same-category others as pay referents. Non-whites, meanwhile, are more likely to identify cross-race others as pay referents.

In looking at the data from both our field study and the survey, in comparison to whites, females, and males, non-whites are much more likely to work in units that are composed of a relatively small proportion of same-race others. For example, the mean proportion of same-race peers in Black workers' work units in our field study is 32.18%, which is comparable to the mean proportion of same-race peers Black respondents reported for their work-units in our online survey (29.13%). As our simple slope tests reveal, our findings are significant only when demographic similarity is high but not when it is low. Hence, our null findings for non-whites in both our field and survey studies may be explained by the fact that non-whites generally have

¹² Because of the difficulty of recruiting significant numbers of non-white participants, in our vignette we focused solely on gender similarity.

fewer opportunities to form referent groups of work-unit peers of the same race due to the lower incidence of same-race others in their work settings.

While we were unable to observe whom workers at HealthCo select as pay referents, the results from two supplemental tests are largely consistent with a significant body of research showing that individuals tend to select same-category others as referents, giving us greater confidence that the results of our field data can be explained by referent-selection processes.

DISCUSSION

A well-documented finding in social-science research is that individuals are prone to compare their rewards to those received by similar others and that worker satisfaction is determined, in part, by perceptions of (un)fairness arising from these comparisons (Festinger, 1954). We see the manifestation of these processes clearly in the context of employment. Because firms are typically structured so that many individuals are co-located and working in jobs requiring cooperation and social interaction, individuals frequently choose their coworkers as referents (Adams, 1963), leading social-comparison processes to operate more strongly within than across firm boundaries. Yet, research has also found that individuals prefer comparing themselves to others who are similar on related attributes such as gender and race (e.g., Lawrence, 2006). Although U.S. firms have become increasingly diverse demographically over the past several decades, pay-dispersion research has not explored the possibility that how individuals respond to pay dispersion may be contingent on how demographically similar they are to others in their workplace.

Our core argument is that social-comparison processes operate more vigorously when an individual is in a work unit with more demographically similar others, which is reflected in his or her propensity to voluntarily exit the firm when pay dispersion is higher. We argued that

individuals tend to compare themselves to and, thus, have more information about the pay of same-category others. Using a unique, single-firm sample of workers employed by a large U.S. firm as well as supplemental survey and vignette-study data, we find support for our argument that workers will respond unfavorably to higher rates of pay dispersion when more individuals in their work unit are of the same gender. The results of our survey and vignette studies suggest that this pattern likely exists because both males and females are more likely to select same-sex others as pay referents and, thus, have greater awareness of the pay of same-sex others in their work units. The patterns for race, however, are more complex. Our race hypothesis seems to be supported only for whites. Based on the results of our survey and an examination of work unit composition at HealthCo, this pattern is most likely the result of non-whites having significantly more cross-race others as referents; because non-whites are frequently numerical minorities in their work units, they have fewer opportunities to select similar others as referents.

Implications for Organizational Studies

In recent years, scholars have more fully explored the effect of pay dispersion on organizational, group, and individual outcomes, focusing considerable attention on reconciling predictions from competing theoretical perspectives (see Shaw 2014). While underscoring a key tension, research in this area has largely overlooked how comparison processes within groups may affect employee responses to pay dispersion. We see this as an important omission because prior research has found that the choice of referents is highly contingent on the composition of worker units; thus, social-comparison processes may not operate uniformly within organizational boundaries. To date, most dispersion research implicitly assumes that two otherwise equivalent people working in groups with the same level of pay dispersion are likely to respond to it in the same way. This study highlights that individual reactions to pay dispersion also depend on whom

workers likely see as their referents, which itself is a product of work-unit demography. In identifying and exploring how demographic diversity—an increasingly salient aspect of many U.S. firms—shapes pay-comparison processes, we extend existing research by examining how workplace composition affects employee responses to pay dispersion.

Specifically, we argue and offer evidence that employee responses to pay dispersion are affected by the demographic composition of their work unit. Our results appear to derive primarily from the fact that individuals tend to identify demographically similar others as referents. Our findings therefore suggest that in order to assess how workers are likely to react to higher levels of pay dispersion, researchers should attend more closely to referent-selection processes that occur within work units. Although identifying with whom individuals specifically compare themselves is a challenge in many field settings, prior research offers some guidance about this based on similarity of related attributes, such as gender and race (e.g., Lawrence, 2006). Moreover, we provide empirical evidence to suggest that reactions to pay dispersion do, in fact, vary depending on the demographic composition of work units.

Our findings also have implications for research on organizational demography. Prior research contends that demographic homogeneity lowers conflict and fosters cohesion in work groups, and research in this area has found a fairly consistent negative relationship between racial similarity and turnover (e.g., Sorensen 2004, Zatzick et al. 2013). Our finding that this relationship is weaker when variance in pay is greater suggests that both racial homogeneity and reward homogeneity are necessary to foster group-level cohesion, at least for whites. In light of our findings, research on organizational demography may benefit from a deeper consideration of how the distribution of economic rewards may facilitate or hinder efforts to maximize the benefits associated with a given demographic composition. In a related vein, our study has

implications for research on personal disclosures in the workplace. While such research has shown that demographic similarity fosters the sharing of information, thereby drawing individuals closer and encouraging future sharing (e.g., Dumas et al. 2013), our findings suggest that if personal disclosures include information that reveals significant pay differentials, they may actually create friction between workers that leads them to leave organizations.

Finally, our study contributes to recent efforts in the turnover literature to better understand of the effect of organizational context on individual-level turnover (e.g., Hom, Lee, Shaw, & Hausknecht, 2016). Researchers have previously examined how a handful of organization-level (e.g., culture, demography, and organization reward systems) and group-level (e.g., cohesion and gender composition) characteristics affect turnover (see Holtom et al. 2008, p. 241). To our knowledge, ours is the first study to look at how two known turnover antecedents, pay dispersion and demographic similarity, interact at the group level to affect individual turnover. In doing so, our study highlights the value of exploring how higher-level constructs interact not only with individual-level attributes but also with one another to influence individual turnover decisions.

Implications for Practice and Policy

Our study also holds important implications for practice and policy. The decisions managers make about how best to reward workers for their labor, in both absolute and relative terms, play an important role in the overall functioning and performance of firms (Leana & Meuris, 2015). Although existing theory offers some guidance about how employees may respond to more-compressed versus more-dispersed wage-setting systems, our results suggest these theories may be incomplete. Specifically, if individual responses vary based on the demographic characteristics of one's work setting, then the predicted outcomes of more-

dispersed pay may vary across groups and individuals within those groups. In light of our findings, managers should take unit-level demographic diversity into account when developing compensation systems given that employee responses to more-dispersed pay schedules depend in part on the demographic composition of their work unit.

In a related vein, managers of demographically similar work units should give particular attention to pay differentials in their work units. Because these workers are more likely to be aware of how much others make, transparency regarding the criteria used to determine pay is critical. Should substantial disparities in pay emerge in such groups, managers should assume that workers are aware of these differences, and should proactively address the issue with employees, or they risk workers leaving the firm.

Although demographic heterogeneity may provide managers greater opportunity to provide differential rewards for similar work, our results also indicate the potential challenges workers face when determining whether their pay is commensurate to that of demographically dissimilar work-unit peers. Recently, scholars have given increased attention to how pay transparency affects worker outcomes (e.g., Belogolovsky et al., 2016). Because strong norms for pay transparency do not exist in the United States, workers are less likely to be aware of pay differences in demographically heterogeneous work units. Although in our context pay dispersion does not appear to be a direct consequence of demographic diversity, these same dynamics may appear in contexts where discrimination is occurring. Evidence suggests that pay-discrimination charges are rare because workers must have the necessary information to discern whether their rewards are commensurate with those of out-group others (e.g., Lewis 2008). Absent firm or public policies that promote pay transparency or otherwise help uncover pay discrimination, our results suggest that such discriminatory pay practices are likely to go

unreported because workers lack awareness of unequal pay across out-groups.

Limitations and Future Directions

Some caution is necessary for generalizing these findings, as the data come from a single organization in the health-services sector. Studying pay dispersion requires tradeoffs between depth and generalizability, since providing analyses at the work-unit level usually requires detailed data from inside a firm, which is difficult to obtain from multiple sites. In fact, obtaining personnel records containing salary, gender, and race data from a single firm is now quite challenging. The fear of sanctions were the analyses to reveal previously unrecognized patterns of discrimination not only discourages firms from sharing this information with external partners, but it also discourages firms from exploring these issues internally (Strum, 2001). Given these challenges, it is not surprising that most studies on pay dispersion within organizations rely on data from settings where information on pay is publicly available, such as sports teams (e.g., Trevor et al. 2012) and top-management teams (e.g., Bloom and Michel 2002). That our data include workers across job levels and working in a wide variety of functional areas is a particular strength of this study. Our discussions with HealthCo did not reveal any reason to believe that their pay or staffing practices would be different from those of other large firms, increasing our confidence that the results presented here likely generalize to other large U.S. organizations.

Nonetheless, it is important for researchers to extend our analyses to other settings as we are unable to determine whether our results would differ in firms that are smaller, organize work around more idiosyncratic tasks, have different wage-setting and performance-evaluation systems, have explicit or implicit pay-secrecy policies in place, have more pay transparency, and/or are not as proactive about identifying systematic instances of gender and racial pay

inequality. Each of these features may place important boundary conditions that affect the results of our study. For example, employee responses to pay dispersion may vary in settings where workers are likely to believe that wage differentials result from legitimate processes (see Shaw and Gupta 2007). Future studies must examine whether our results can be replicated in other settings, including non-U.S. contexts where norms about gender and racial equality may differ.

We also found evidence that the effects varied between whites and non-whites but not between males and females. It is interesting that our analyses of two typically disadvantaged groups, non-whites and females, reveal different patterns. These differences may be due to the overall demographic composition at HealthCo, which is majority white and majority female. As alluded to above, it is possible that a reduced number of opportunities for within-category comparisons within one's work-unit peers would encourage a worker to select referents of the same demographic category outside of his or her work unit. Alternatively, although research has consistently found individuals to prefer same category referents (e.g., Lawrence, 2006) and that sharing personal information with someone of a different demographic category is challenging (e.g., Towles-Schwen & Fazio, 2003), workers in organizational settings composed of few demographically-similar others may redouble their efforts to form connections with cross-category others. Thus, our null findings for racial similarity for non-whites may be due to differences in the way these workers develop pay referents. Importantly, our racio-ethnic categories are also coarse and thus may not adequately capture the dynamics we advance in our study. For example, the ethnic category "Asian" includes people of both Indian and Japanese descent. But there are few reasons to expect that they would perceive themselves as sharing a common racio-ethnic identity.

In light of our findings and given these limitations, we believe an important avenue for

future research is to examine the referent formation processes of individuals representing different, and preferably more fine-grained, demographic categories and in firms that vary in terms of their demographic composition to garner a better understanding of how these processes vary across demographic groups and work settings. Moreover, because we did not have enough groups of workers with the requisite demographic heterogeneity, we were unable to examine how the combination of gender and race may affect our pattern of results. Given researchers' attention to demographic fault lines (e.g., Lau and Murnighan 2005) and dominant identities (Ely, 1995), we believe that another interesting extension of this study would be to examine whether the interaction of racial and gender similarity affects responses to pay dispersion.

We are also not able to capture social-comparison, social-identification, or social-contrasting dynamics directly in our field setting. We argue that if existing theory about these dynamics is correct, we should see employees react differently to levels of pay dispersion, depending on the degree of gender or racial diversity in their work unit. While this approach is common in field studies on social comparisons (e.g., Obloj & Zenger, 2017) and pay dispersion (e.g., Carnahan et al., 2012; Shaw, 2015), we do recognize it as an important limitation. Through our survey and vignette, however, we were able to affirm that both men and women tend to select same-sex others as pay referents and, through our survey, that whites tend to select same-race others as referents, while non-whites do not. Although it is rare for researchers to have access to both detailed personnel data and psychometric data on individual workers in a field setting of this size, future research may be able to use other methods, such as surveys and interviews, to better isolate the social-psychological mechanisms we highlight in this study.

REFERENCES

- Adams, J. S. 1963. Toward an understanding of inequity. *Journal of Abnormal Psychology*, 67(5): 422–436.
- Aiken, L. S., & West, S. G. 1991. *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage Publications.
- Allison, P. D. 1978. Measures of inequality. *American Sociological Review*, 43(6): 865–880.
- Arnkellsson, G. B., & Smith, W. P. 2000. The impact of stable and unstable attributes on ability assessment in social comparison. *Personality and Social Psychology Bulletin*, 26(8): 936–947.
- Belogolovsky, E., Bamberger, P., Alterman, V., & Wagner, D. T. 2016. Looking for assistance in the dark: Pay Secrecy, expertise perceptions, and efficacious help seeking among members of newly formed virtual work groups. *Journal of Business and Psychology*. <https://doi.org/10.1007/s10869-015-9427-4>.
- Berscheid, E., & Walster, E. 1978. *Interpersonal attraction*. Reading, MA: Addison-Wesley.
- Blau, F. D., & Kahn, L. M. 2016. The gender wage gap: Extent, trends, and explanations. *Journal of Economic Literature*.
- Bloom, M., & Michel, J. G. 2002. The relationships among organizational context, pay dispersion, and managerial turnover. *Academy of Management Journal*, 45(1): 33–42.
- Buchanan, T. 2008. The same-sex-referent-work satisfaction relationship: Assessing the mediating role of distributive justice perceptions. *Sociological Focus*, 41(2): 177–196.
- Bureau of Labor Statistics. 2016. *Labor force characteristics by race and ethnicity, 2015*. Washington, D.C.
- Buunk, A. P., & Van der Laan, V. 2002. Do women need female role models? Subjective social status and the effects of same-sex and opposite sex comparisons. *Revue Internationale de Psychologie Sociale*, 15(3–4): 129–155.
- Byrne, D. 1971. *The attraction paradigm*. New York: Academic Press.
- Carnahan, S., Agarwal, R., & Campbell, B. A. 2012. Heterogeneity in turnover: The effect of relative compensation dispersion of firms on the mobility and entrepreneurship of extreme performers. *Strategic Management Journal*, 33: 1411–1430.
- Castilla, E. J. 2011. Bringing managers back in: Managerial influences on workplace inequality. *American Sociological Review*, 76(5): 667–694.
- Cohn, A., Fehr, E., Herrmann, B., & Schneider, F. 2014. Social comparison and effort provision: Evidence from a field experiment. *Journal of the European Economic Association*, 12(4): 877–898.
- Conroy, S. A., Gupta, N., Shaw, J. D., & Park, T.-Y. 2014. A multilevel approach to the effects of pay variation. *Research in Personnel and Human Resources Management*, vol. 32.
- Crosby, F. 1976. A model of egoistical relative deprivation. *Psychological Review*, 83(2): 85–113.
- Davison, H. K. 2014. The paradox of the contented female worker: Why are women satisfied with lower pay? *Employee Responsibilities and Rights Journal*, 26(3): 195–216.
- Dovidio, J. F., Gaertner, S. L., & Saguy, T. 2009. Commonality and the complexity of “we”: social attitudes and social change. *Personality and Social Psychology Review*, 13(1): 3–20.
- Downes, P. E., & Choi, D. 2014. Employee reactions to pay dispersion: A typology of existing research. *Human Resource Management Review*, 24(1): 53–66.
- Dumas, T. L., Phillips, K. W., & Rothbard, N. P. 2013. Getting closer at the company party: Integration experiences, racial dissimilarity, and workplace relationships. *Organization*

- Science*, 24(5): 1377–1401.
- Edelman, B., & Larkin, I. 2015. Social comparisons and deception across workplace hierarchies: Field and experimental evidence. *Organization Science*, 26(1): 78–98.
- Ely, R. J. 1995. The role of dominant identity and experience in organizational work on diversity. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace*: 161–186. Washington, D.C.: American Psychological Association.
- Festinger, L. 1954. A theory of social comparison processes. *Human Relations*, 7(2): 117–140.
- Gartrell, C. D. 2002. The embeddedness of social comparison. *Relative deprivation: Specification, development, and integration*: 164–184.
- Gerhart, B. A., & Rynes, S. L. 2003. *Compensation: Theory, evidence, and strategic implications*. Thousand Oaks, CA: Sage Publications.
- Gibson, D. E., & Lawrence, B. S. 2010. Women's and men's career referents: How gender composition and comparison level shape career expectations. *Organization Science*, 21(6): 1159–1175.
- Goethals, G. R., & Darley, J. M. 1977. Social comparison theory: An attributional approach. *Social comparison processes: Theoretical and empirical perspectives*: 259–278.
- Gomez-Mejia, L., Berrone, P., & Franco-Santos, M. 2010. *Strategic compensation and performance*. New York: ME Sharpe.
- Goodman, P. S. 1977. Social comparison processes in organizations. In B. M. Staw & G. R. Salancik (Eds.), *New Directions in Organizational Behavior*. St. Clair Press.
- Goodman, P. S., & Haisley, E. 2007. Social comparison processes in an organizational context: New directions. *Organizational Behavior and Human Decision Processes*, 102(1): 109–125.
- Grant, A., & Parker, S. 2009. Redesigning work design theories: The rise of relational and proactive perspectives. *Academy of Management Annals*, 3(1): 317–375.
- Griffeth, R. W., Hom, P. W., & Gaertner, S. 2000. A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management*, 26(3): 463–488.
- Gupta, N., Conroy, S. A., & Delery, J. E. 2012. The many faces of pay variation. *Human Resource Management Review*, 22(2): 100–115.
- Hagerty, M. R. 2000. Social comparisons of income in one's community: evidence from national surveys of income and happiness. *Journal of Personality and Social Psychology*, 78(4): 764–771.
- Hamilton, B. H., & Nickerson, J. A. 2003. Correcting for endogeneity in strategic management research. *Strategic Organization*, 1(1): 51–78.
- Hausknecht, J. P., & Holwerda, J. a. 2013. When does employee turnover matter? Dynamic member configurations, productive capacity, and collective performance. *Organization Science*, 24(1): 210–225.
- Heavey, A. L., Holwerda, J. A., & Hausknecht, J. P. 2013. Causes and consequences of collective turnover: A meta-analytic review. *Journal of Applied Psychology*, 98(3): 412–453.
- Hogg, M. A., & Terry, D. J. 2000. Social identity and self-categorization processes in organizational contexts. *Academy of Management Journal*, 25(1): 121–140.
- Holtom, B., Mitchell, T., Lee, T., & Eberly, M. 2008. Turnover and retention research: A glance at the past, a closer review of the present, and a venture into the future. *Academy of*

- Management Annals*, 2(1): 231–274.
- Hom, P., Lee, T. W., Shaw, J. D., & Hausknecht, J. P. 2016. One hundred years of employee turnover theory and research. *Journal of Applied Psychology*.
- Ibarra, H. 1995. Race, opportunity, and diversity of social circles in managerial networks. *Academy of Management Journal*, 38(3): 673–703.
- Jenkins, G. D., Mitra, A., Gupta, N., & Shaw, J. D. 1998. Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology*, 83(5): 777–787.
- Kacperczyk, A. J., & Bazzazian, N. 2016. *Vertical and horizontal comparisons and mobility outcomes: Evidence from the Swedish microdata*.
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2662211.
- Kennedy, P. 2003. *A guide to econometrics* (5th editii). Cambridge, MA: MIT Press.
- Kepes, S., Delery, J., & Gupta, N. 2009. Contingencies in the effects of pay range on organizational effectiveness. *Personnel Psychology*, 62(3): 497–531.
- Kruglanski, A. W., & Mayseless, O. 1990. Classic and current social comparison research: Expanding the perspective. *Psychological Bulletin*, 108Kruglan(2): 195–208.
- Larkin, I., Pierce, L., & Gino, F. 2012. The psychological costs of pay-for-performance: Implications for the strategic compensation of employees. *Strategic Management Journal*, 33(10): 1194–1214.
- Lau, D. C., & Murnighan, J. K. 2005. Interactions within groups and subgroups: The effects of demographic faultlines. *Academy of Management Journal*, 48(4): 645–659.
- Lawrence, B. S. 2006. Organizational reference groups: A missing perspective on social context. *Organization Science*, 17(1): 80–100.
- Leana, C. R., & Meuris, J. 2015. Living to work and working to live: Income as a driver of organizational behavior. *Academy of Management Annals*, 9(1): 55–95.
- Lemmerer, A. 2016. Modeling the correct level of analysis in non-aggregated household panel data: A simulation approach. *Marketing Letters*, 27(2): 247–257.
- Lewis, J. 2008. Wage discrimination and the difficulty of proof. *Loyola Public Interest Law Reporter*, 13(1): 66–74.
- Major, B., & Testa, M. 1989. Social comparison processes and judgments of entitlement and satisfaction. *Journal of Experimental Social Psychology*, 25(2): 101–120.
- Martin, R., Suls, J., & Wheeler, L. 2002. Ability evaluation by proxy: Role of maximal performance and related attributes in social comparison. *Journal of Personality and Social Psychology*, 82(5): 781–791.
- McPherson, M., Smith-Lovin, L., & Brashears, M. E. 2006. Social isolation in America: Changes in core discussion networks over two decades. *American Sociological Review*, 71(3): 353–375.
- Messersmith, J. G., Guthrie, J. P., Ji, Y.-Y., & Lee, J.-Y. 2011. Executive turnover: The influence of dispersion and other pay system characteristics. *Journal of Applied Psychology*, 96(3): 457–469.
- Moore, D. 1991. Entitlement and justice evaluations: Who should get more, and why/stable/2786651. *Social Psychology Quarterly*, 54(3): 208–223.
- Nickerson, J. A., & Zenger, T. R. 2008. Envy, comparison costs, and the economic theory of the firm. *Strategic Management Journal*, 29(13): 1429–1449.
- Obloj, T., & Zenger, T. 2017. Organization design, proximity, and productivity responses to upward social comparison. *Organization Science*, 28(1): 1–18.

- Pfeffer, J., & Langton, N. 1993. The effect of wage dispersion on satisfaction, productivity, and working collaboratively: Evidence from college and university faculty. *Administrative Science Quarterly*, 38(3): 382–407.
- Pfeffer, J., & Moore, W. L. 1980. Average tenure of academic department heads: The effects of paradigm, size, and departmental demography. *Administrative Science Quarterly*, 25(3): 387–406.
- Phillips, K. W., Rothbard, N. P., & Dumas, T. L. 2009. To disclose or not to disclose? Status distance and self-disclosure in diverse environments. *Academy of Management Review*, 34(4): 710–732.
- Powell, I., Montgomery, M., & Cosgrove, J. 1994. Compensation structure and establishment quit and fire rates. *Industrial Relations*, 33(2): 229–248.
- Riddell, C. 2011. Compensation policy and quit rates: A multilevel approach using benchmarking data. *Industrial Relations*, 50(4): 656–677.
- Shaw, J. D. 2014. Pay dispersion. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1): 521–544.
- Shaw, J. D. 2015. Pay dispersion, sorting, and organizational performance. *Academy of Management Discoveries*, 1(2): 165–179.
- Shaw, J. D., & Gupta, N. 2007. Pay system characteristics and quit patterns of good, average, and poor performers. *Personnel Psychology*, 60(4): 903–928.
- Shaw, J. D., Gupta, N., & Delery, J. E. 2002. Pay dispersion and workforce performance: Moderating effects of incentives and interdependence. *Strategic Management Journal*, 23(6): 491–512.
- Shelton, J. N., & Richeson, J. A. 2005. Intergroup contact and pluralistic ignorance. *Journal of Personality and Social Psychology*, 88(1): 91–107.
- Shi, Y., Leite, W., & Algina, J. 2010. The impact of omitting the interaction between crossed factors in cross-classified random effects modelling. *British Journal of Mathematical and Statistical Psychology*, 63(1): 1–15.
- Sims, H. P., Gioia, D. A., Longenecker, C. O., Sims, H. P., & Gioia, D. A. 1987. Behind the mask: The politics of employee appraisal. *Academy of Management Executive*, 1(3): 183–193.
- Sorensen, J. B. 2004. The organizational demography of racial employment segregation. *American Journal of Sociology*, 110(3): 626–671.
- Strum, S. 2001. Second generation employment discrimination: A structural approach. *Columbia Law Review*, 101: 458–568.
- Tajfel, H. 1978. Social categorization, social identity and social comparison. *Differentiation between social groups: Studies in the social psychology of intergroup relations*: 61–76.
- Towles-Schwen, T., & Fazio, R. H. 2003. Choosing social situations: The relation between automatically activated racial attitudes and anticipated comfort interacting with African Americans. *Personality and Social Psychology Bulletin*, 29(2): 170–182.
- Trevor, C. O., Reilly, G., & Gerhart, B. 2012. Reconsidering pay dispersion's effect on the performance of interdependent work: Reconciling sorting and pay inequality. *Academy of Management Journal*, 55(3): 585–610.
- Trevor, C. O., & Wazeter, D. L. 2006. A contingent view of reactions to objective pay conditions: interdependence among pay structure characteristics and pay relative to internal and external referents. *The Journal of Applied Psychology*, 91(6): 1260–75.
- Wade, J. B., O'Reilly, C. A., & Pollock, T. G. 2006. Overpaid CEOs and underpaid managers:

- Fairness and executive compensation. *Organization Science*, 17(5): 527–544.
- Wang, T., Zhao, B., & Thornhill, S. 2015. Pay dispersion and organizational innovation: The mediation effects of employee participation and voluntary turnover. *Human Relations*, 68(7): 1155–1181.
- Wei, X. 2016. A meta-analysis of the effects of pay level and pay dispersion on firm operational outcomes. *Advances in Psychological Science*, 24(7): 1020–1031.
- Weinstein, N. D. 1980. Unrealistic optimism about future life events. *J. Pers. Soc. Psychol.*, 39(5): 806–820.
- Wimmer, A., & Lewis, K. 2010. Beyond and below racial homophily: ERG models of a friendship network documented on Facebook. *American Journal of Sociology*, 116(2): 583–642.
- Wood, J. V. 1989. Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, 106(2): 231–248.
- Zatzick, C. D., Elvira, M. M., & Cohen, L. E. 2003. When is more better? The effects of racial composition on voluntary turnover. *Organization Science*, 14(5): 483–496.

Figure 1. Interaction Plots of Significant Interactions

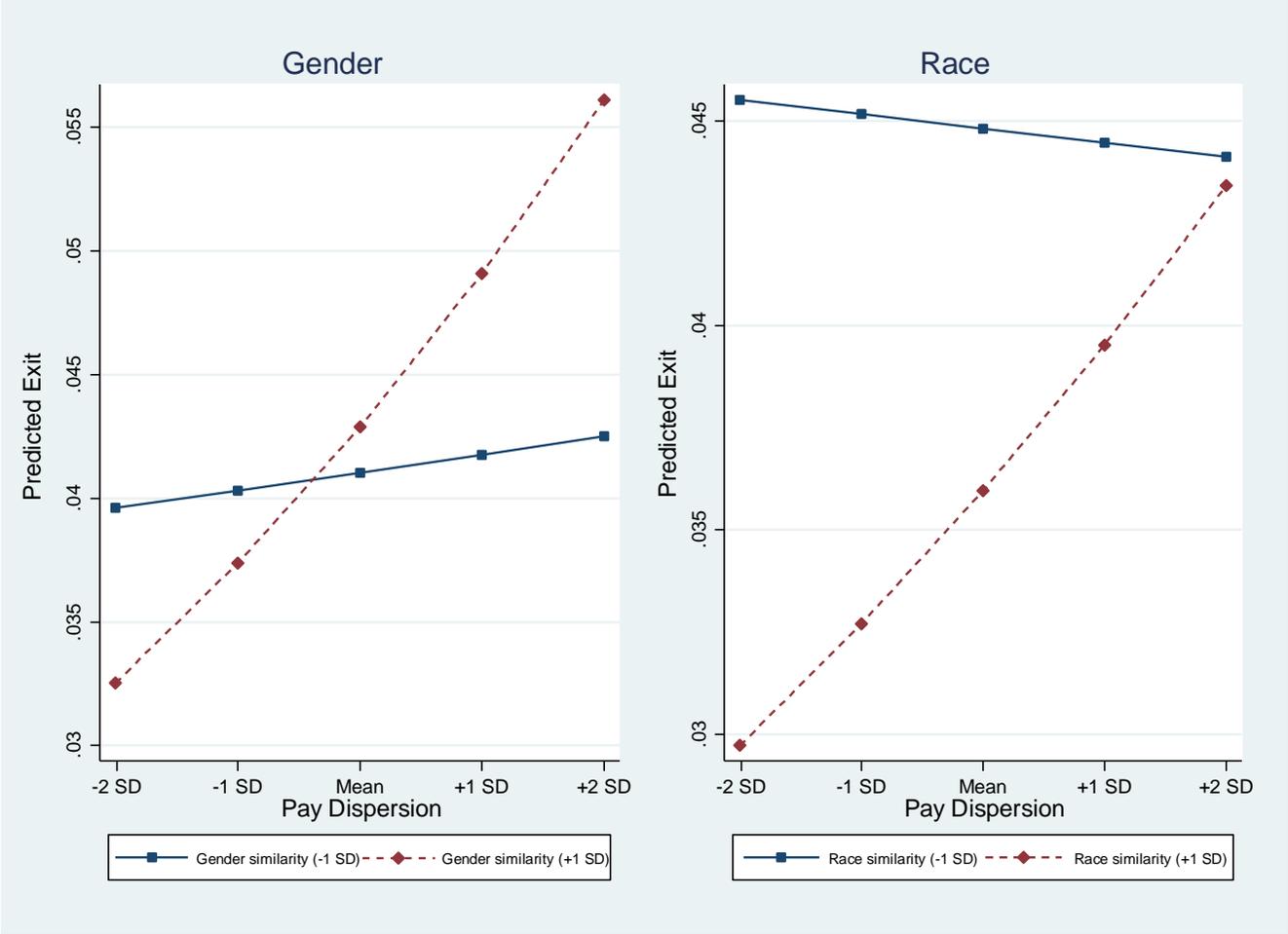


Table 1. Descriptive Statistics and Correlation Matrix

VARIABLES	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10
1 Voluntary exit	0.04	0.19	1									
2 Pay dispersion	10.40	5.46	0.00	1								
3 Same gender (%)	0.68	0.27	0.01	-0.05	1							
4 Same race (%)	0.63	0.31	-0.02	0.09	0.01	1						
5 Top performer	0.63	0.48	0.02	-0.06	-0.05	-0.10	1					
6 Bottom performer	0.85	0.35	-0.03	0.09	0.02	0.10	-0.32	1				
7 Salary (ln)	10.80	0.49	-0.03	0.10	-0.15	0.13	-0.16	0.11	1			
8 Salary rank	16.89	21.63	0.05	-0.02	0.07	-0.11	0.12	-0.15	-0.27	1		
9 Female	0.70	0.46	0.01	-0.03	0.49	-0.05	0.03	-0.01	-0.26	0.08	1	
10 Black	0.15	0.36	0.01	-0.08	0.03	-0.48	0.11	-0.08	-0.15	0.08	0.10	1
11 Hispanic	0.13	0.34	0.00	0.00	0.04	-0.04	-0.09	0.03	-0.19	0.07	0.00	-0.16
12 Asian	0.03	0.17	-0.01	0.01	-0.04	-0.27	-0.02	0.01	0.10	-0.02	-0.08	-0.08
13 Other	0.02	0.13	0.01	0.00	0.00	-0.26	0.02	-0.04	-0.02	0.03	0.00	-0.06
14 Age	41.22	11.07	0.01	0.06	0.11	0.13	-0.10	0.11	0.22	-0.08	0.03	-0.09
15 Tenure	5.92	5.93	-0.02	0.12	0.05	0.17	-0.13	0.22	0.17	-0.17	0.06	-0.06
16 Supervisor same gender	0.63	0.48	0.01	-0.01	0.34	0.02	-0.01	0.00	-0.07	0.03	0.14	0.01
17 Supervisor same race	0.66	0.47	-0.02	0.07	0.01	0.58	-0.06	0.07	0.09	-0.07	-0.04	-0.37
18 Work unit size (ln)	3.00	1.12	0.04	-0.06	0.08	-0.16	0.09	-0.13	-0.22	0.67	0.10	0.09
19 Work unit mean salary (ln)	10.80	0.47	-0.03	0.12	-0.15	0.13	-0.13	0.09	0.97	-0.18	-0.26	-0.15
20 Work unit tenure dispersion	76.96	26.20	0.02	0.04	0.01	-0.11	0.11	-0.14	-0.01	0.19	0.02	0.01
21 County unemployment %	8.44	1.63	-0.04	0.00	-0.02	-0.08	0.01	-0.01	0.00	-0.04	-0.04	0.08

VARIABLES	11	12	13	14	15	16	17	18	19	20	21
11 Hispanic	1										
12 Asian	-0.07	1									
13 Other	-0.05	-0.02	1								
14 Age	0.03	-0.06	-0.05	1							
15 Tenure	-0.06	-0.06	-0.07	0.36	1						
16 Supervisor same gender	0.03	-0.02	-0.01	0.06	0.03	1					
17 Supervisor same race	-0.06	-0.22	-0.19	0.09	0.13	0.09	1				
18 Work unit size (ln)	0.09	-0.04	0.03	0.01	-0.15	0.03	-0.09	1			
19 Work unit mean salary (ln)	-0.20	0.10	-0.01	0.18	0.14	-0.08	0.09	-0.23	1		
20 Work unit tenure dispersion	-0.08	0.03	0.04	-0.06	-0.19	0.01	-0.04	0.32	-0.01	1	
21 County unemployment %	0.11	0.02	-0.01	-0.01	-0.06	0.00	-0.06	-0.03	-0.01	-0.02	1

Table 2. Cross-Classified Random Effects Logit Models on Voluntary Turnover

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Top performer	--	--	--	0.194*** (0.050)	0.193*** (0.050)	0.144** (0.047)
Bottom performer	--	--	--	-0.322*** (0.063)	-0.323*** (0.063)	-0.319*** (0.057)
Salary (ln)	--	--	--	-1.141*** (0.207)	-1.153*** (0.208)	-1.170*** (0.193)
Salary rank	--	--	--	0.002 (0.002)	0.002 (0.002)	0.000 (0.002)
Female	--	--	--	-0.068 (0.062)	-0.059 (0.062)	-0.080 (0.058)
Black	--	--	--	-0.113 (0.077)	-0.111 (0.077)	-0.016 (0.072)
Hispanic	--	--	--	-0.108 (0.081)	-0.104 (0.081)	0.050 (0.075)
Asian	--	--	--	-0.331* (0.148)	-0.328* (0.148)	-0.264+ (0.140)
Other	--	--	--	-0.026 (0.160)	-0.025 (0.160)	-0.084 (0.149)
Age	--	--	--	0.006* (0.002)	0.006* (0.002)	0.007*** (0.002)
Age-squared	--	--	--	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Tenure	--	--	--	0.022* (0.008)	0.021* (0.008)	0.039*** (0.008)
Tenure-squared	--	--	--	-0.004*** (0.001)	-0.004*** (0.001)	-0.006*** (0.001)
Supervisor same sex	--	--	--	-0.078 (0.057)	-0.078 (0.057)	-0.087 (0.054)
Supervisor same race	--	--	--	0.016 (0.049)	0.020 (0.049)	0.014 (0.046)
Work unit size (ln)	--	--	--	0.008 (0.043)	0.005 (0.043)	0.001 (0.001)
Work unit mean salary (ln)	--	--	--	0.838*** (0.220)	0.863*** (0.221)	0.908*** (0.203)
Work unit tenure dispersion	--	--	--	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)
County unemployment %	--	--	--	-0.138*** (0.023)	-0.135*** (0.023)	-0.348*** (0.017)
Pay dispersion	0.017** (0.005)	0.015** (0.005)	0.008 (0.005)	0.014** (0.005)	0.012* (0.005)	0.006 (0.005)
Same gender (%)	0.023 (0.086)	0.038 (0.087)	0.109 (0.086)	0.087 (0.110)	0.094 (0.110)	0.043 (0.102)
Pay dispersion x Same gender (%)	--	0.031* (0.015)	--	--	0.038* (0.015)	--
Same race (%)	-0.292*** (0.077)	-0.294*** (0.077)	-0.375*** (0.075)	-0.402*** (0.112)	-0.400*** (0.112)	-0.409*** (0.104)
Pay dispersion x Same race (%)	--	--	0.027* (0.013)	--	--	0.036** (0.012)
Constant	-3.477*** (0.293)	-3.470*** (0.293)	-2.657*** (0.043)	-1.409*** (0.214)	-1.444*** (0.215)	0.378 (0.429)
Observations/individuals	65,818/36,021	65,818/36,021	65,818/36,021	65,818/36,021	65,818/36,021	65,818/36,021
Job dummies/Year dummies	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Log likelihood	-9460	-9460	-9524	-9181	-9181	-10548
Wald chi-square	700.5***	703.7***	672.3***	943.3***	948.8***	747.1***

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.

Table 3. Cross-Classified Random Effects Logit Models of Within- and Between-Category Pay Dispersion

VARIABLES	Model 1	Model 2
	<i>Gender</i>	<i>Race</i>
Within-sex pay variance	0.057* (0.027)	--
Between-sex pay variance	0.019 (0.072)	--
Within-race pay variance	--	0.067** (0.025)
Between-race pay variance	--	-0.058 (0.082)
Constant	-2.288*** (0.481)	-2.319*** (0.483)
Observations/individuals	65,818/36,021	65,818/36,021
Job dummies/Year dummies	Yes/Yes	Yes/Yes
Log likelihood	-8008	-8007
Wald chi-square	829.94***	831.59***

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses. All models include the full complement of controls.

Table 4. Split Sample Cross-Classified Random Effects Logit Models

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	<i>Males</i>	<i>Females</i>	<i>Whites</i>	<i>Blacks</i>	<i>Hispanics</i>	<i>Asians</i>
Pay dispersion	0.048*** (0.009)	0.010 (0.007)	0.004 (0.007)	0.045+ (0.024)	-0.015 (0.013)	0.018 (0.077)
Same gender (%)	0.166 (0.199)	-0.139 (0.176)	0.150 (0.120)	0.383 (0.291)	-0.734* (0.285)	0.333 (0.467)
Pay dispersion x Same gender (%)	0.088*** (0.026)	0.051* (0.024)	--	--	--	--
Same race (%)	-0.436* (0.189)	-0.311* (0.135)	-0.747*** (0.149)	0.218 (0.359)	0.290 (0.273)	0.012 (0.795)
Pay dispersion x Same race (%)	--	--	0.062** (0.021)	0.096 (0.058)	-0.003 (0.031)	0.095 (0.156)
Constant	-2.457*** (0.560)	-3.265*** (0.728)	-0.019 (0.217)	1.573*** (0.444)	1.574** (0.550)	-0.239 (1.082)
Observations/individuals	19,455/10,627	46,363/25,394	44,183/24,130	9,898/5,626	8,474/4,388	2,059/1,172
Job dummies/year dummies	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Log likelihood	-2601	-5692	-6967	-1746	-1341	-290.4
Wald chi-square	339.5***	585.3***	543.1***	172.1***	168.2***	34.69*

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses. All models include the full complement of controls.

THE EFFECTS OF PAY DISPERSION AND DEMOGRAPHIC SIMILARITY ON EMPLOYEE TURNOVER

APPENDIX

The following document is the online appendix for the paper, *The Effects of Pay Dispersion and Demographic Similarity on Employee Turnover*. Contained in this document are the details of our supplementary analyses. Specifically, the document contains the following tables and study details and are ordered by their reference in the published manuscript:

Appendix A:

Table 1. Descriptive Statistics for Split Sample Analyses

Appendix B:

Study 1. How Demographic Similarity Affects Referent Selection: A Survey Analysis

Table 2. Ordinary Least Squares Regressions of Demographic Characteristics of Selected Referents by Gender and Race

Appendix C:

Study 2. How Gender Similarity Affects Referent Selection: A Vignette-Study Analysis

Table 3. Ordinary Least Squares and Logistic Regressions of Demographic Characteristics of Selected Referents by Gender

APPENDIX A

Table 1. Descriptive Statistics for Split Sample Analyses

Variables	Men		Women		Whites		Black		Hispanic		Asian	
	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>
Voluntary exit	0.03	0.18	0.04	0.19	0.04	0.19	0.04	0.20	0.04	0.19	0.03	0.17
Pay dispersion	10.60	5.83	10.29	5.30	10.60	5.47	9.38	5.03	10.37	5.79	10.71	5.43
Same gender (%)	0.47	0.30	0.77	0.21	0.67	0.28	0.70	0.25	0.70	0.28	0.62	0.28
Same race (%)	0.66	0.31	0.62	0.31	0.76	0.21	0.27	0.18	0.59	0.39	0.15	0.19
Top performer	0.61	0.49	0.64	0.48	0.62	0.48	0.75	0.43	0.52	0.50	0.57	0.49
Bottom performer	0.86	0.35	0.85	0.35	0.87	0.34	0.79	0.41	0.88	0.33	0.88	0.32
Salary (ln)	10.99	0.56	10.72	0.43	10.87	0.48	10.62	0.35	10.56	0.52	11.06	0.46
Salary rank	14.37	19.51	18.09	22.49	15.31	19.92	21.05	24.14	20.86	26.26	14.18	18.90
Female	--	--	--	--	0.69	0.46	0.81	0.39	0.70	0.46	0.50	0.50
Black	0.10	0.30	0.17	0.38	--	--	--	--	--	--	--	--
Hispanic	0.13	0.34	0.13	0.34	--	--	--	--	--	--	--	--
Asian	0.05	0.22	0.02	0.15	--	--	--	--	--	--	--	--
Other	0.02	0.13	0.02	0.14	--	--	--	--	--	--	--	--
Age	40.67	11.21	41.42	11.01	41.90	11.21	38.78	9.82	41.93	11.68	37.32	8.18
Tenure	5.36	5.53	6.09	6.07	6.39	6.41	5.08	4.96	5.03	4.53	3.89	3.54
Supervisor same gender	0.52	0.50	0.67	0.47	0.62	0.48	0.64	0.48	0.66	0.47	0.58	0.49
Supervisor same race	0.69	0.46	0.65	0.48	0.81	0.39	0.25	0.43	0.60	0.49	0.08	0.28
Work unit size (ln)	2.83	1.12	3.08	1.12	2.91	1.10	3.23	1.07	3.26	1.21	2.75	1.06
Work unit mean salary (ln)	10.99	0.54	10.72	0.42	10.87	0.47	10.63	0.34	10.56	0.51	11.06	0.45
Work unit tenure dispersion	76.28	25.39	77.47	26.66	77.54	26.43	77.86	25.42	71.87	26.40	81.98	23.72
County unemployment %	8.54	1.61	8.39	1.63	8.28	1.62	8.75	1.46	8.90	1.71	8.58	1.49
Observations	19,455		46,363		44,183		9,898		8,474		2,059	
Number of individuals	10,627		25,394		24,130		5,626		4,388		1,172	

APPENDIX B

HOW DEMOGRAPHIC SIMILARITY AFFECTS REFERENT SELECTION:

A SURVEY ANALYSIS

Participants and design

We recruited 525 working adults from a paid online panel, Qualtrics in collaboration with Research Now, which allowed us to select only full-time employees and have their backgrounds validated through more sophisticated screening techniques (e.g., LinkedIn profiles, digital fingerprint identification). Since we were interested in specific working adults, we instructed the panel manager to invite approximately 500 employees, 300 of whom were White or Asian, 100 of whom were Hispanic and 100 of whom were Black. We also asked the panel to recruit a sample that had relatively equal proportion of women and men. We added screeners to ensure that participants recruit those who were employed by an organization (i.e., not self-employed), had to be working at least 35 hours per week, and were part of a work group of at least 3 individuals. This helped ensure that referent selection within a workgroup was possible for the participants in our study. Our final sample consisted of 51.7% women, 57.4% was White (i.e., Caucasian), average age was 44.5 years old, the median participant earned between \$70,000-\$79,999, average years of work experience was 23.4 years, average tenure at the current employer was 10.4 years, and 62.4% had completed at least a bachelor's degree.

At the beginning of the survey, we asked participants to list 5 people in their organization with whom they compare themselves. We instructed participants that these referents could be individuals that they think about when they reflect on their pay, the nature of their work tasks and/or the values and relationships they have at the workplace. Following this, we asked participants whether each person works in the same work group as them. We offered examples of

what a work group meant, including consisting of individuals reporting to the same immediate supervisor, working on the same project team, and/or working the same shift. We then asked them questions related to the gender and race of the individuals they chose, which we examined in the analyses below.

Measures

Proportion of similar referents. We examined the similarity of referents chosen by examining both gender and race variables of the referents that participants chose. For each referent they listed, participants were asked the gender of the referent (i.e., Male or Female), as well as what best describes the referent's ethnic or racial background (White/Caucasian, Black, , Hispanic, Asian, Native American, Pacific Islander or Other). We then computed two variables—one representing the proportion of similar referents in terms of gender and the other representing the proportion of similar referents in terms of race/ethnicity.

Gender. We asked participants to indicate their gender: male, female or other.

Race. We asked participants to indicate their race: White, Black, Hispanic, Asian, or other.

Control variables. We included several individual-level control variables—age, education, income, firm tenure, total years of work experience, work-unit size, and the demographic composition of their work unit—that may affect the relationship between participants' gender/race and their selection of referents.

Verification check: To ensure participants completed the task correctly, we asked participants whether each individual worked as the same as employer as them. We also asked participants whether each referent was a member of the same work unit.

Results

We found that 78.0% of all referents identified were members of participants' work units. A comparison of means tests from the survey results reveal that men selected a higher proportion of same-sex others ($M = 73.12$, $SD = 1.70$) than cross-sex others ($M = 26.88$, $SD = 1.70$) as referents; $t(253) = 13.57$, $p = 0.000$. Female participants also selected a higher proportion of same-sex others ($M = 69.73$, $SD = 1.77$) than cross-sex others ($M = 30.27$, $SD = 1.77$) as referents; $t(272) = 11.16$, $p = 0.000$. We also found that whites selected a higher proportion of same-race others ($M = 83.23$, $SD = 1.25$) than cross-race others ($M = 16.77$, $SD = 1.25$) as referents; $t(302) = 26.53$, $p = 0.000$. However, non-whites selected a higher proportion of cross-race others ($M = 68.82$, $SD = 2.20$) than same-race others ($M = 31.18$, $SD = 2.20$) as referents; $t(223) = 8.57$, $p = 0.000$.

We also examined whether these results were robust to the inclusion of our control variables. The results of these tests can be found in Table 2 below. Because we were interested in comparing whether members of a gender or race category were significantly more likely to select as referents, others in that same category, in models 1 through 5, the dependent variables represent the proportion of referents that were female, white, Black, Hispanic, and Asian, respectively. In models 2 through 5, the omitted racial category consists of all other races than the one being analyzed. Models 6 through 9 correspond to models 2 through 5, but the dependent variable is the proportion of same race referents.

As model 1 reveal, and consistent with the comparison of means tests, females are significantly more likely than males to select female referents. Similarly, the results from models 2 show that in comparison to non-whites, white participants were significantly more likely to select white referents. This pattern holds as well for Blacks (model 3) and Hispanics (model 4). Asians, however, are no more likely than non-Asians to select Asian referents (model 5). The

results from models 6 through 9 also correspond to the results from our sample of means tests, showing that whites are significantly more likely than non-whites to select same race referents while Blacks, Hispanics, and Asians are significantly less likely to select same race referents. Thus, while Blacks and Hispanics are significantly more likely than non-blacks and non-Hispanics, respectively, to choose members of their own race as referents (models 3 and 4), members of both racio-ethnic categories are also significantly more likely to select members of another race as referents (models 7 and 8).

Table 2. Ordinary Least Squares Regressions of Demographic Characteristics of Selected Referents by Gender and Race

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
	DV = % Female Referents	DV = % White Referents	DV = % Black Referents	DV = % Hispanic Referents	DV = % Asian Referents		DV = % Same Race Referents		
						<i>Whites</i>	<i>Blacks</i>	<i>Hispanics</i>	<i>Asians</i>
Female	20.639*** (2.449)	-0.232 (1.899)	-0.001 (1.212)	-0.496 (1.134)	-0.056 (0.777)	3.774 (2.472)	13.186*** (3.138)	4.793 (3.229)	9.104** (3.295)
White		7.963*** (2.147)				57.400*** (2.795)			
Black	2.041 (2.693)		9.952*** (1.668)				-38.127*** (4.305)		
Hispanic	1.722 (2.766)			5.104** (1.647)				-41.895*** (4.690)	
Asian	-3.941 (5.210)				-0.130 (2.092)				-30.759*** (8.867)
Other race	4.614 (8.302)								
Total group size	-0.004 (0.030)	0.043 (0.028)	0.014 (0.018)	-0.034* (0.016)	-0.032** (0.011)	0.020 (0.036)	-0.017 (0.046)	-0.083+ (0.045)	-0.085+ (0.047)
Females in group (%)	0.642*** (0.037)								
Whites in group (%)		0.666*** (0.033)				-0.172*** (0.044)			
Blacks in group (%)			0.757*** (0.034)				0.076 (0.089)		
Hispanics in group (%)				0.772*** (0.030)				0.355*** (0.086)	
Asians in group (%)					0.803*** (0.036)				-0.382* (0.152)
Constant	6.882 (13.991)	2.133 (12.995)	-3.773 (8.297)	22.098** (7.594)	-0.758 (5.320)	44.127** (16.915)	59.794** (21.477)	81.876*** (21.629)	72.024** (22.548)
Observations	525	525	525	525	525	525	525	525	525
R-squared	0.630	0.580	0.629	0.691	0.557	0.513	0.204	0.201	0.123

All models include controls for age, education, total years of work experience, firm tenure, and income.

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.

APPENDIX C

HOW GENDER SIMILARITY AFFECTS REFERENT SELECTION:

A VIGNETTE-STUDY ANALYSIS

Participants and design

We recruited 312 working adults from Amazon Mechanical Turk. 46.8% of the sample was female, 75.2% was White (i.e., Caucasian), average age was 35.1 years old, median household income was between \$50,000-\$50,999, average years of work experience was 14.8, 96.4% were currently working employees, and 59.6% had completed at least a bachelor's degree.

At the beginning of the study, we told participants that we were interested in understanding how people respond to situations in organizations. We instructed them to imagine that they were working for an organization called "ABC Corporation." In the scenario described, they were told that ABC Corporation has announced salaries for next year, and their salary was determined to be \$35,000. They were told that as an employee, "you were curious about the salaries of your coworkers as you have been contemplating whether you should continue working at ABC Corporation or whether you should look for a job at another employer."

After receiving this information, they were told that they now had the opportunity to approach their coworkers one at a time to discuss salaries at ABC Corporation with them. They were instructed that after approaching the coworker, the coworker would then decide whether to share his/her salary with them. To simulate the realism of these types of conversations, we told participants that they should assume that they would need to share their salary with any coworker that they approached (otherwise there would be costs to their reputation). We also included a loading screen (detailed below) to make the conversations feel more cumbersome and costly.

Participants were then directed to a screen asking them which coworker they wanted to approach first about his/her salary. Since we were interested in whether who people were likely to select based on their gender, participants were given a list of 8 coworkers—4 men (i.e., Adam A., Joshua R., Michael D. and Christopher G) and 4 women (i.e., Ashley F., Jessica B., Brittney K, and Amanda S.). We cross-balanced the names to ensure that men and women were equally salient across the list. We also gave participants an additional option: “I am finished speaking to people,” which they could select at any time. After choosing the coworker, they were given a 15 second loading screen. We did this to simulate the time it takes to have a conversation with coworkers, as well as ensure that they thoughtfully select whom they wanted to speak to. After making their choice, participants were told that the person they selected agreed to share their salary with them before returning to the main screen. This would enable them to then make their next selection. This process continued until they selected all 8 of their coworkers or they selected the, “I am finished speaking to people” option. When this happened, they encountered a loading screen, and the vignette was over.

Measures

Selection of referents. Since we were interested in the gender of referents that participants selected, we created two measures to reflect this. First, we created a measure of the proportion of men versus women selected by participants across all of their choices. Second, we created a measure of whom participants selected first (a man or a woman).

Gender of participant. We asked participants to indicate their gender: male, female or other.

Control variables. We included several individual-level control variables—age, race, education, income, employment status, and the number of years of work experience—that may

affect the relationship between participants' gender and their selection of referents. We also included a control for the amount of time (in seconds) respondents took taking the vignette to help account for the concern that participants were not paying close attention during the study.

Results

On average, male participants chose to see the pay of 3.49 others and female participants chose to see the pay of 3.17 others. A paired-samples t-test was conducted to compare the proportion of referents who were of the same sex versus of the other sex for both male and female participants. Male participants selected a higher proportion same-sex others ($M = 61.29$, $SD = 1.77$) than cross-sex others ($M = 38.71$, $SD = 1.77$) as referents; $t(166) = 6.37$, $p = 0.000$. Female participants also selected a higher proportion same-sex ($M = 63.14$, $SD = 1.72$) than cross-sex others ($M = 36.86$, $SD = 1.72$) as referents; $t(144) = 7.64$, $p = 0.000$. We also conducted tests to examine whether male and female participants exhibited a preference for same-sex referents for the first referent selected. Male participants more frequently selected a same-sex other ($M = 73.65$, $SD = 0.34$) than a cross-sex other ($M = 26.35$, $SD = 0.34$) as their first referent; $t(166) = 7.87$, $p = 0.000$. Female participants also more frequently selected a same-sex ($M = 69.66$, $SD = 0.38$) than a cross-sex other ($M = 30.34$, $SD = 0.38$) as their first referent; $t(144) = 5.17$, $p = 0.000$.

We also examined whether these results were robust to the inclusion of our control variables. The results of these tests can be found in Table 3 below. Consistent with our comparison of means test, females (males) are significantly more likely than males (females) to select female (male) referents. Females (males) are also significantly more likely than males (females) to have selected a female (male) name as their first referent.

Table 3. Ordinary Least Squares and Logistic Regressions of Demographic Characteristics of Selected Referents by Gender

Variables	(1)	(2)
	DV = % Female Referents	DV = Female Selected First
Female	24.357*** (2.570)	2.286*** (0.296)
Total referents selected	1.123 (0.679)	0.023 (0.076)
Black	3.082 (5.083)	-0.092 (0.561)
Hispanic	4.447 (4.869)	-0.435 (0.554)
Asian	12.924** (4.824)	0.230 (0.517)
Other race	5.987 (8.369)	-0.349 (0.891)
Self-employment	9.990 (7.155)	-0.172 (0.799)
Study time	-0.004 (0.003)	-0.000 (0.000)
Constant	43.835** (15.162)	1.201 (1.437)
Estimation method	OLS	Logit
Observations	312	312
R-squared	0.327	--
Log likelihood	-1385	-164.7
Chi-squared	--	92.31

All models include controls for age, education, total years of work experience, and income.
 *** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.