

Will I Stay or Will I Go? Cooperative and Competitive Effects of Workgroup Sex and Race Composition on Turnover

**Kathleen L. McGinn
Katherine L. Milkman**

Working Paper

10-066

Copyright © 2010 by Kathleen L. McGinn and Katherine L. Milkman

Working papers are in draft form. This working paper is distributed for purposes of comment and discussion only. It may not be reproduced without permission of the copyright holder. Copies of working papers are available from the author.

Will I Stay or Will I Go?
Cooperative and Competitive Effects of Workgroup Sex and Race Composition on Turnover.¹

Kathleen L. McGinn
Harvard Business School
Harvard University
kmcginn@hbs.edu

Katherine L. Milkman
Wharton School
University of Pennsylvania
kmilkman@wharton.upenn.edu

February, 2010

DRAFT –
Feedback greatly appreciated

¹ We are grateful to Cailin Hammer for her able assistance on multiple aspects of the research and to Harvard Business School for funding. We thank seminar participants at Harvard Business School, London Business School, INSEAD, NYU and the University of Utah for their insightful feedback on this paper. We are grateful to the employees of 'KLM' who generously shared their data, time and ideas with us. This research could not have happened without the generous guidance of Anne Mercogliano.

Will I Stay or Will I Go?

Cooperative and Competitive Effects of Workgroup Sex and Race Composition on Turnover

We develop an integrated theory of the social identity mechanisms linking workgroup sex and race composition across levels with individual turnover. Building on social identity research, we theorize that social cohesion (Tyler, 1999; Hogg and Terry, 2000) and social comparison (Festinger, 1954) lead to well-known cooperative effects within subordinate-supervisor pairs of the same sex and race, but potentially competitive effects among demographically similar peers. Analyzing longitudinal human resource data on professionals employed in a large up-or-out knowledge organization, we assess the distinct effects of demographic match with superiors and demographic match with peers on the exit of junior professionals. We find largely cooperative effects of cross-level composition—junior professionals who work in groups with higher proportions of same sex senior professionals are less likely to exit. At the peer level, however, these effects are reversed, and professionals are more likely to leave as the proportions of same sex and race peers within the workgroup increase. The effects hold across demographic groups, but vary by majority/minority status, disproportionately affecting women and underrepresented minorities.

Organizational sex and race composition result from hiring, promotions and turnover within firms. Demographic mix at the top of organizations remains fairly consistent over time (Cohen, Broschak, and Haveman, 1998; Elvira and Cohen, 2001), partly because those making hiring and promotion decisions engage and retain employees similar to themselves (Kanter, 1977b; Smith, 2002). Increasing the diversity of a workforce is further impeded by a higher absolute exit rate for women and minorities (Phipps, et al., 2001; Hom, et al., 2008). The result of these career mobility processes is, and has been for generations, the continued underrepresentation of women and minorities at the highest levels of organizations (Reskin, McBrier, and Kmec, 1999; Smith, 2002).

Career mobility processes in organizations reflect the social identities of those making exit decisions as well as those making hiring and promotion decisions. Research following Tajfel and Turner's (1986) seminal work on social identity suggests two distinct products of in-group identification: social cohesion and social comparison. Social cohesion refers to the tendency for

people to have close relationships with others like themselves, while social comparison refers to the tendency to consider group membership when comparing oneself to others (Hogg and Terry, 2000). Patterns of cohesion and comparison reflect people's tendency to interact and identify with others with whom they share salient identity dimensions, such as race and sex (Turner, 1987). Substantial evidence suggests that social identity paves the way for cooperative, supportive relationships between subordinates and their demographically similar superiors (Tsui and O'Reilly, 1989; Roberson, Galvin, and Charles, 2007). Demographic similarity with one's peers, however, may lead to negative identification effects in some circumstances. Growing numbers of demographically similar others vying for status, limited resources and promotions may stimulate individual differentiation within a low status identity group, leading to increased competition among in-group members (Ely, 1994; Tolbert, et al., 1995).

We focus on patterns of voluntary and involuntary turnover in up-or-out knowledge organizations, such as consulting firms, law firms and universities. Women and minorities are underrepresented at the top levels in these organizations, reflecting ongoing inequalities in promotion and exit rates (Bertrand, Goldin, and Katz, 2008). We attempt to shed light on the potentially conflicting cooperative and competitive forces of demographic similarity within and across organizational levels on turnover among professionals. Shared demographic characteristics with one's superiors enhance cooperation and support from above (Tsui, Egan, and O'Reilly, 1992), as well as providing evidence that "people like me" can succeed in a given organization (Ibarra, 1999). Shared demographic characteristics among workgroup peers, however, may lead to competition, especially among those in the minority (Ely, 1994; Tolbert,

et al., 1995). As a result of these divergent social identity processes, increases in same sex and race superiors in a professional's workgroup may reduce the likelihood of that professional's exit, while increases in same sex and race peers may increase the likelihood of exit.

We investigate the relationship between workgroup demographics and turnover in one up-or-out, knowledge organization. Examining turnover in one organization across levels and over time allows us to untangle the multiple ways in which social identity influences career mobility. First, we describe the critical human capital features of knowledge organizations and provide evidence that women and racial minority group members are systematically underrepresented at senior levels in these institutions. Social identity research helps us understand the theoretical underpinnings of this inequality, pointing to both cooperative and competitive effects of social cohesion and social comparison. We predict higher proportions of demographically similar supervisors will reduce the likelihood of subordinate turnover, while higher proportions of demographically similar peers will increase the likelihood of turnover. Our analyses provide evidence of the hypothesized effects. In conclusion, we suggest that integrating social cohesion and social comparison research enhances our understanding of racial and gender inequality within organizations and facilitates organizations' ability to reduce that inequality.

Inequalities in Up-or-out Knowledge Organizations

Institutions fitting our conceptualization of up-or-out knowledge organizations have three defining human capital features. First, the knowledge organization's primary asset is its human capital—the knowledge, skills and connections of its professionals (Sherer, 1994; Von

Nordenflycht, 2010). Second, the knowledge organization's human resource structure is pyramidal, and promotion policies push professionals up or out over a fairly well-specified time period (Sherer, 1994). Finally, a group of senior professionals decides which junior professionals move up and which move out. These promotion practices politicize promotions (Gandz and Murray, 1980), making senior sponsorship vital for the junior professional.

Organizations fitting this conceptualization, such as universities and law and consulting firms, control or shape many of society's resources and are thus a particularly important domain for examining issues of diversity. Inequalities in the senior ranks by sex and race remain rampant in knowledge organizations. In 2009, women made up 46 percent of associates and 19 percent of partners across U.S. law firms (Collins, 2009). Racial minorities comprised 20 percent of the lawyers across all ranks in 2009, but just six percent of all partners (Collins, 2009). Roughly half of the minority partners were Asian Americans, while a quarter were African American and a quarter were Hispanic (Barker, 2008). Among business school faculty in top tier universities in 2008, 28 percent of the assistant professors, 20 percent of associate professors and 13 percent of the full professors were women. Underrepresented minorities made up a more constant, though smaller, 12 percent of the assistant professors, 11 percent of associate professors and nine percent of full professors.² In accounting firms in 2007, women accounted for 43 percent of all professionals, but only 23 percent of the same firms' "top earners" (Working Mothers Media Inc., 2007).

² Because comparable university data were not published in other available sources, we collected these data from the Faculty Directory links available in 2008 on websites from a sample of upper tier Business Schools in nine U.S. Universities (Columbia University, Dartmouth University, Harvard University, New York University, Northwestern University, Stanford University, University of California-Berkeley, University of Chicago, University of Pennsylvania).

Inequalities in race and gender at the highest levels in knowledge organizations persist despite increasingly balanced representation of women and minorities in “pipeline” graduate programs. In 1992, roughly when those currently occupying the highest ranks in knowledge organizations were entering the workforce, law schools, PhD programs feeding into business-school faculty positions, and MBA programs graduated 43, 26 and 35 percent women, respectively.³ In 1992, underrepresented minorities made up nine percent of the graduating class from U.S. law schools, three percent of graduates from business school PhD programs and seven percent of MBAs.

These data are consistent with past research arguing that racial and gender inequities among senior professionals are not a product of inadequate pools of qualified entry-level applicants (Goldin, 2006). Nor, as evidenced in the data on the professions discussed above, do they result from entry-level hiring decisions. Instead, the persistent underrepresentation of women and minorities at the top of knowledge organizations appears to result from disproportionately low rates of promotion and high rates of turnover (Cotton and Tuttle, 1986; Hom, Roberson, and Ellis, 2008), reflecting the demographics of those making promotion and termination decisions (Cohen, et al., 1998). Our in-depth examination of turnover in one knowledge organization allows us to develop an integrated theory of the underlying identity mechanisms linking workgroup sex and race composition across levels with individual turnover (Lawrence, 1997; Reskin, et al., 1999).

³ Law School data are from the American Bar Association statistics, <http://www.abanet.org/legaled/statistics/charts/stats%20-%201.pdf>. Business School data are from the U.S. Department of Education, National Center for Education Statistics Annual Digests.

Social Cohesion and Social Comparison Effects at Two Levels

Tajfel defined social identity as “that part of an individual’s self concept which derives from his [*sic*] knowledge of his membership in a social group (or groups) together with the emotional significance attached to that membership” (1974: 69). Social categorization, the tendency for an individual to view others as similar or dissimilar to the self along identity dimensions (Tajfel and Turner, 1986; Hogg and Terry, 2000), extends this knowledge of group membership to our concept of others. Taken together, social identity and social categorization act as a “system of orientation which creates and defines the individual’s own place in society” (Tajfel, 1974). This system of identification and categorization underlies both social cohesion and social comparison processes in organizations, drawing organizational members from the same social groups together (Hogg and Terry, 2000) and heightening awareness of those social groups in intragroup and intergroup evaluations (Kruglanski and Mayseless, 1990; Brewer and Weber, 1994). Race and sex are notably salient identity dimensions and are frequently the basis of social cohesion and social comparison (Cota and Dion, 1986; Maccoby, 1988; Porter and Washington, 1993; Frable, 1997).

Tsui and O’Reilly defined relational demography as the “comparative demographic characteristics of members of dyads or groups who are in a position to engage in regular interactions” (1989: 403). Two elements of this definition are critical for our examination of social cohesion and comparison effects on turnover. First, “comparative” denotes focus on the similarities or differences in demographic characteristics across organizational members, rather than on the effects of individual characteristics themselves. Second, “in a position to engage in

regular interactions” implies that the mechanism underlying relational demography effects is interaction, not mere similarity (O'Reilly III, Caldwell, and Barnett, 1989; Tsui and O'Reilly, 1989). We consider the potential effects of “comparative demographic characteristics” and “regular interaction” across supervisor-subordinate levels and among workgroup peers.

Social cohesion at two levels

Social cohesion occurs when demographic similarity, and the associated perceptions of similarities on other dimensions (Harrison, Price, and Bell, 1998), heightens attraction and increases the likelihood that people will communicate with others of their own race and sex (Brass, 1985; Tsui and O'Reilly, 1989; Ibarra, 1993; McPherson, Smith-Lovin, and Cook, 2001). Within-group communication leads to mutual obligations and shared expectations, further enhancing cohesion and cooperation (Coleman, 1988). Increased within-group communication is not necessarily associated with decreased cross-group communication, but past research suggests that the two occur simultaneously in practice (Hoffman, 1985). In a study of women within U.S. federal agencies, for example, South et al., (1982) found that as the proportion of women in the workgroup rose, communication among female coworkers increased and cross-sex communication decreased. Relatively high-frequency within-group interaction reinforces positive preconceptions among similar co-workers, while rare interactions with dissimilar others leave “people not like me” an unknown, susceptible to negative biases (Stott and Drury, 2004).

Multiple studies reveal positive effects of identity-based social cohesion within subordinate-supervisor pairs (e.g., Vecchio and Bullis, 2001; Tsui, Porter, and Egan, 2002). In a

seminal study, Tsui and O'Reilly collected cross-sectional survey data from 272 supervisor-subordinate dyads in a single, multi-divisional company. Relative to mixed-sex dyads, a supervisor's liking of his or her same-sex subordinate was higher, the same-sex subordinate's role ambiguity was lower, and the supervisor's evaluations of the same-sex subordinate were more positive (Tsui & O'Reilly, 1989). Subsequent research added detail and support to the conclusion that demographic similarity with superiors enhances employees' experiences at work by raising the quality of cross-level relationships (Pelled and Xin, 2000), reducing perceived discrimination (Avery, McKay, and Wilson, 2008) and increasing family-supportive supervision (Foley, et al., 2006). Superiors tend to select demographically similar subordinates for critical career opportunities, information and training (Ragins and McFarlin, 1990; Scandura and Viator, 1994; Barker, Monks, and Buckley, 1999). Effective career development, in turn, leads to higher organizational commitment and lower turnover (Payne and Huffman, 2005).

Demographic similarity with one's peers, at least in terms of age or cohort, has also been shown to reduce the likelihood of exit (Wagner, Pfeffer, and O'Reilly, 1984; Williams and O'Reilly, 1998; Sørensen, 2000), but the results for similarity in sex and race are more equivocal. Unlike the broadly positive effects for supervisor-subordinate demographic similarity, the influence of peer-group relational demography on social cohesion and careers appears to vary across different demographic groups (Brass, 1985; Hoffman, 1985; Ibarra, 1992; Mehra, Kilduff, and Brass, 1998).

Empirical and theoretical work by gender and race scholars points to power as the unexamined, explanatory variable linking demography-based social cohesion to individual

experiences and career outcomes (Frankenberg, 1993; McGuire, 2002; Smith, 2002). Cohesion among powerful, majority-group actors results in greater access to resources and information (Berger, et al., 1978; Brass, 1984). In contrast, cohesion among less powerful actors may lead to structural marginalization, creating “ghettoes” of low-power minority groups (Bobo and Hutchings, 1996; Mehra, et al., 1998). Tsui, Egan and O’Reilly (1992) studied 151 workgroups within a single organization. Overall, they found that greater similarity in both sex and race between an individual and her or his coworkers associated positively with the individual’s psychological commitment to and intent to remain in the organization. These effects held only for whites and males, however; for women, greater similarity *lowered* organizational attachment. Ibarra’s studies (1992; 1995) portray professional services firms in which majority groups (whites and men) reap greater benefits from within-group cohesion than their minority counterparts. White men benefitted professionally from the easy accessibility of high power, same-sex and -race social ties. Minority group members’ ties were bifurcated—they formed friendships with demographically similar others, but the dearth of similar others in powerful positions required that they form additional, instrumental relationships with white men (Ibarra, 1992; 1995). Brass (1985) found that female employees were less likely than their male peers to be in the primarily male dominant coalition, resulting in lower influence and promotion probabilities for women relative to their male colleagues. Ibarra (1992; 1995) and Brass (1985) conclude that the preference for social ties with similar others maintains across demographic groups, but the opportunities for and payoffs to those ties vary between white males and others.

Social comparison at two levels

Before Tajfel and Turner (1986) elucidated the role of in-group to out-group comparisons in the development of social identity, Festinger (1954) presented social comparison with similar others as a basic element of self-evaluation. Tajfel and Turner's (1986) social comparison process involves cross-group evaluation of one's identity *vis-à-vis* membership in a group differentiated from other groups. In contrast, Festinger's (1954) social comparisons involve within-group evaluations of one's attributes relative to other, similar individuals. A focus on *collective* outcomes activates Tajfel and Turner's intergroup comparisons, while a focus on *personalized* outcomes activates Festinger's intragroup comparisons (Brewer and Weber, 1994; Mussweiler, 2003).

The choice of referent other in social comparisons is often based on demographic characteristics (Gastorf and Suls, 1978; Miller, 1982; Major, McFarlin, and Gagnon, 1984; Blanton, 2001). When collective outcomes are salient, people compare their in-group, those sharing their demographics, to out-groups of those not sharing their demographics; when personal outcomes are salient, people compare themselves as individuals to other, demographically similar individuals. A female analyst might compare the assignments given to women in the firm to those given to men (Roth, 2003), while comparing her own pay to that of other women doing similar work (Major and Forcey, 1985).

Asking "Will I stay or will I go?" triggers both collective and personalized identity concerns. Collective concerns translate the question into "Can *people like me* succeed here?" This is a form of similarity testing (Mussweiler, 2003). Superiors whose demographics mirror

those of their subordinates are more likely to be considered suitable role models, signaling to the lower-level employees that “People like me can succeed here” (Ragins and McFarlin, 1990; Scandura, 1992; Wheeler, Martin, and Suls, 1997; Barker, et al., 1999; Ibarra, 1999). Social comparison with high-competence superiors provides evidence that success is attainable and desirable. This upward social comparison involving superiors is likely to invoke positive reflection rather than negative contrast (Turner, 1988). Brewer and Weber spell out the predicted effects: “As the level of identity shifts from ‘me’ to ‘us’, high performance by an in-group member should reflect positively on one’s self-evaluation” (1994: 268).

Personalized identity concerns translate the question into “Can I succeed here?” This question invokes *dissimilarity* testing, contrasting the self with similar others (Brewer & Weber, 1994). Groysberg and his colleagues found evidence of competitive status seeking among peers within financial firms on Wall Street (Groysberg, Polzer, and Elfenbein, 2009). The choice of referent peers is likely to incorporate personal relevance criteria as well as expectations about whom important others in the firm will deem relevant (Ely, 1994; Mussweiler, 2003). Major and Forcey (1985), for example, found that women compare their pay to that of other women, rather than to that of men. Ely’s (1994) study of women attorneys revealed within-group social comparison accompanied by perceptions of within-group competitiveness in firms where the nearly all the partners were male (89 to 95 percent); firms with a more balanced male-female representation in leadership (71 to 85 percent male partners) displayed higher levels of perceived support among female peers. Women in the more male-dominated firms appeared to recognize, or at least perceive, that their career opportunities were linked with those of

other women in the firm, leading to separation and differentiation from other, low-status, peer female attorneys (Ely, 1994).

Demographically similar junior professionals are structurally equivalent actors (Burkhardt, 1994) competing for support from the same senior professionals. To the extent that a junior professional believes decision makers within the organization rely on within-race and within-sex comparisons, it behooves that junior professional to assess his or her chances of success relative to demographically similar referents. As the pool of these relevant others grows, the likelihood of encountering upward social comparisons increases. In contrast to the positive effect of upward social comparisons with superiors, upward social comparisons with high-competence peers provide evidence that one's own success may be difficult and voluntary exit may be warranted. In parallel, as those in charge of promotion and termination decisions face a growing pool of structurally equivalent subordinates (Burkhardt, 1994; Burt, 1997), these same comparisons by decision makers may affect involuntary exit.

Hypotheses

Social cohesion and social comparison processes may lead to diverging cooperative and competitive effects across levels. As a result, the impact of increasing representation of demographically similar senior professionals (seniors) on the likelihood that junior professionals (juniors) will exit up-or-out knowledge organizations may differ from the impact of demographically similar peers. We expect demographic similarity across junior and senior professionals within workgroups to result in positive social cohesion and social comparison

processes. These cooperative processes will reduce the need for and desire of junior professionals to exit the organization. Specifically:

Hypothesis 1a: The higher the proportion of seniors of the same sex as a junior within the junior's work group, the lower the likelihood that the junior will voluntarily or involuntarily exit.

Hypothesis 1b: The higher the proportion of seniors of the same race as a junior within the junior's work group, the lower the likelihood that the junior will voluntarily or involuntarily exit.

The effects of cross-level similarities may vary depending on the power of the demographic group (Tolbert, et al., 1995), as discussed earlier. Furthermore, those in low-power groups may, ironically, be in greater need of senior sponsorship than those in the majority. Burt (1998), examining differences in promotion patterns between men and women, found that the ideal network structure to maximize promotions differs dramatically for men and women. Women, Burt finds, have to rely on social capital borrowed from key sponsors, so close ties to those sponsors are critical, while men's career mobility is driven by their own social capital or lack thereof, so a broader range of disconnected ties is beneficial. Due to power differences and the differences in the need for strong ties to senior sponsors, we predict that the cooperative effects of demographic similarity with superiors will be heightened for women and underrepresented minorities, relative to those in the demographic majority. Specifically:

Hypothesis 2: The reduction in junior voluntary and involuntary exits due to the heightened presence of demographically similar others at the senior ranks will be exaggerated for women and underrepresented minorities, relative to the majority demographic group.

Among peers, however, demographic similarity within workgroups in knowledge organizations may spark potentially negative social comparison processes. Professionals are

likely to view their demographically similar peers within their workgroup as competition for promotions and for the limited attention of senior professionals. These competitive effects will increase the need for and desire of junior professionals to exit the organization. Specifically:

Hypothesis 3a: The higher the proportion of junior peers of the same sex as a junior within the junior's work group, the higher the likelihood that the junior will voluntarily or involuntarily exit.

Hypothesis 3b: The higher the proportion of junior peers of the same race as a junior within the junior's work group, the higher the likelihood that the junior will voluntarily or involuntarily exit.

Social cohesion research suggests that these effects may vary with the power of the demographic group. If only a small minority of senior professionals is female or from an underrepresented minority group, the perceived need to compete and differentiate among women or underrepresented minorities may overshadow the limited instrumental effects of social cohesion within these groups. In contrast, the positive effects of social cohesion within the most powerful demographic groups may mitigate competitive effects for junior professionals in those groups. We therefore predict that the competitive effects of demographic similarity among juniors will be greater for women and underrepresented minorities than for those in the more powerful demographic majority. Specifically:

Hypothesis 4: The increase in junior voluntary and involuntary exits due to the heightened presence of demographically similar peers will be exaggerated for women and underrepresented minorities, relative to the majority demographic group.

Methods

The Organizational Setting

We studied the cooperative and competitive effects of demographic similarity among co-workers within one organization, which we call “Know, Learn & Manage” (KLM).⁴ KLM embodied the three defining human capital features of knowledge organizations discussed above: its primary assets were its knowledge professionals; the structure was a flattened pyramid; and senior professionals made all promotion decisions. The organization employed an average of 511 professionals during the six-year period of our study. Roughly 60 percent of these professionals were junior.

Most juniors entered the organization directly after completing studies in top-30 graduate schools, although some entered laterally from other, similar organizations. Professionals’ pre-graduate school experiences varied considerably—some had never held a job before; others had pursued careers in different sectors. Juniors were also demographically diverse, as we will discuss in our data section. In many other ways, however, entry-level professionals were notably homogenous. They were well-educated, roughly the same age as one another (mid to late 20’s) and earned high salaries. Starting salaries the last year of our study averaged \$160,000 and grew with tenure. There were some differences in compensation by department, but these were minimal at entry and grew over the years of tenure in the organization. In short, the juniors at KLM varied by sex, ethnicity and some life experiences, but relative to the general population they were much more similar to one another than they were different.

⁴ The first author was invited into KLM by a senior woman in the organization, with the support of the organization’s leadership group. The purpose was to assess the extent to which the organization had reached its goal of gender equality. In lieu of compensation, KLM provided human resource data and contact information for the organization’s current employees. The author agreed that all findings would be shared with KLM. In turn, the organization consented, in writing, to allow the data to be used in published research without review by KLM.

Twenty-eight percent of KLM's professionals had their offices in one location, and the rest were spread across ten smaller locations. Within each location, professionals were divided into workgroups defined by areas of expertise. The majority of a junior's daily interactions at work occurred within his or her local workgroup. In spite of being physically proximate to one another, juniors reported spending the majority of each day engaged in independent work. They did not tend to rely on workgroup peers in their daily routines, although this varied some by expertise.

Promotions could occur anytime, but were clustered in years six through nine of a junior's career. Junior professionals elected when to "go up" for promotion, with guidance from senior professionals. A subgroup of senior leaders in the organization made the promotion decisions, with input from other seniors personally familiar with the relevant junior's work. Most decisions were final, but a few professionals were given an opportunity for a second review. Promotion decisions were announced at the beginning of each calendar year. If a junior was not promoted, he or she had to exit the firm. There were very few exceptions to this rule—less than one percent of professionals were not up or out by their twelfth year. This limited number of "non-track" professionals is common in law firms, which provide "of counsel" positions, universities, which offer "instructor" positions, and accounting and consulting firms, which have a small number of slots for "practice specialists" or "contract consultants."

Quantitative and qualitative data

KLM provided Human Resource (HR) records for all professionals employed by the organization at any point during a 63-month period starting at the beginning of 2000 and

ending in April, 2006 (N = 1,122). Each employee's record documented his or her sex, racial category, birth date, marital status, self-designated GLBT (gay, lesbian, bisexual, transsexual) status, rank in the organization, start date, departure date (if applicable), nature of departure (voluntary or involuntary, if applicable), date of promotion to senior status (if applicable), office location and department. The organization also supplied copies of notes from all 264 exit interviews conducted during the data collection period. Exiting juniors were interviewed in approximately 70 percent of the voluntary exits and 10 percent of the involuntary exits. Prior to releasing the HR data, the organization deleted all names and assigned unique identification numbers to each employee record and the associated exit interview.

We collected supplementary qualitative data through observation and in-person interviews. During our initial visit to KLM, we observed several meetings among the senior leaders. Later, one of the authors attended a day-long professional seminar involving both junior and senior professionals. In informal discussions during these visits, we learned about the organization's structure, norms, work practices and promotion procedures. On two additional days, we talked with employees at the two locations housing the majority of the organization's professional staff. We interviewed ten junior (6 women; 4 men) and two senior professionals (both women) to gain a deeper understanding of why some stayed while others exited the organization. The interviews lasted 60 to 180 minutes. We used a semi-structured approach, focusing our questions on the interviewees' experiences in the profession and at KLM, what was rewarded in the organization, what types of people were seen as leaders or role

models, and the extent to which work practices at KLM helped professionals achieve their career goals.

Coding exit interviews

Human Resources representatives interviewed exiting employees, asking a series of questions about their reasons for leaving KLM and the expected responsibilities and compensation in their new position outside KLM (if known). An additional set of questions inquired into the working conditions and environment within the organization: whether their expectations were met; whether they were treated with dignity and respect; and perceptions about their compensation and benefits at KLM. A number of questions directly asked exiting employees to comment on their interactions with superiors and peers. While there was a common form designed for these interviews, it was used inconsistently and not all questions on the form were asked in all interviews.

We developed a set of codes to classify responses in the exit interviews. The codes were designed to capture information about cooperation and competition between juniors and seniors and among junior peers. Two research assistants, blind to the topic of study, coded the exit interviews using these coding protocols. Dichotomous codes denoted the presence or absence of perceived: (1) cohesion; (2) competition/conflict; and (3) comparison within and across organizational levels. In addition, the research assistants coded for mention of mentoring, sponsorship or alliances with seniors. When one of the categories was coded as present, the coders noted if the comment suggested positive or negative valence. Additional codes flagged any mention of sex or race in any category. The agreement rate across all codes

was 89 percent. One author acted as arbiter for all disagreements. Since the majority of the exit interviews were conducted with those leaving KLM voluntarily, we use counts, ratios and illustrative quotes from the exit data to supplement the primary quantitative analyses regarding voluntary exit.

HR data set

We transformed the quantitative human resources data to create a person-period data set with one observation per junior per calendar year. Job shift events (entrances, promotions and exits) were recorded in the calendar year during which they took place. Our primary dependent variable was the probability that a junior employee would exit KLM in a given year if he or she was not promoted that year. Sex, racial category, location, department, GLBT status and marital status each took a single value for a given employee throughout the data collection period. Assuming sex and race remained constant across time was fairly straightforward. Discussions with KLM partners and HR personnel revealed that movement across the organization was rare, suggesting constant department and location variables were also reasonable. Marital status and declared GLBT status, however, may not be constant across a multi-year period. We therefore did not include marital status or GLBT as controls in our primary analyses, but additional tests showed that our findings did not differ meaningfully in magnitude or statistical significance when we added these controls.

Following Tolbert et al. (1995), we modeled an employee's departure hazard using discrete time survival analysis, which relies on easily-interpretable logistic regressions (Singer and Willett, 1993). Survival analysis provides unbiased coefficient estimates for data sets that

include censored events (e.g., when a junior does not exit the organization at any point in the data collection period or when a junior is promoted). Unlike continuous time survival analysis (Cox, 1972), discrete time survival analysis assumes that events take place at regular intervals, rather than randomly across time. The interval used in the analysis is set to match the temporal nature of the events being studied. The majority of juniors entered KLM at the same time each year; promotion decisions were announced once at the beginning of each calendar year; and terminations following unsuccessful promotions similarly took place in a cluster each year. Other terminations and voluntary exits occurred at less regular intervals but reflected the annual hiring and promotion cycle. These annual events affected the composition of workgroups as well as the likelihood that juniors would exit the organization. Because of this annual periodicity in the events of interest for our study, we set the discrete time interval in our analyses to one year.

The original data set included observations of 733 unique individuals at the junior level. To ensure that our analyses were as unbiased as possible, we eliminated a number of problematic observations from our data set before running our regressions. First, we eliminated all observations involving juniors who remained at the organization for over twelve years without receiving a promotion ($N = 5$), since these professionals had passed the point at which they could plausibly receive a promotion and thus no longer fit our definition of junior professionals. Next, we eliminated all observations of juniors not assigned to a workgroup ($N = 99$). These employees differed from others in that they were employed only a very short period of time, as summer interns for example, and no workgroup assignment was made. For the

purpose of studying turnover, these limited-term hires were not equivalent to long-term employees, nor, practically, could we create our primary predictor variables if the employee in question did not belong to a workgroup. We also dropped all observations of juniors who worked in locations with fewer than 15 employees ($N = 21$) or departments with fewer than 5 employees ($N = 1$). This was necessary because we included controls for an employee's location and department in our regression analyses, and it was not possible to include controls for small locations and departments without over-fitting our data. After eliminating these observations, our sample included 609 juniors distributed across 7 locations, 13 departments and 55 workgroups. **Table 1** presents a summary of organizational and individual characteristics during an average year.

Table 1. Average demographic characteristics of the senior and junior employees at the organization during the six years in our human resources data set.

	Yearly Average Over 6 Years	
	Senior Employees	Junior Employees
Number in Organization	219	292
Number per Location	31	42
Number per Department	17	22
Number per Work Group	3.6	5.2
Age	47	34
Tenure (Years Since Joining Firm)	10	2
% Male	80%	56%
% Caucasian	93%	76%
% Asian	3%	14%
% Black	1%	4%
% Hispanic	1%	4%
% Other Ethnicity	0%	0%
% Ethnicity Unknown	1%	1%
% Part Time	3%	7%
Number of New Hires	14	69
Number of Voluntary Departures	7	34
Number of Terminations	8	18
Number of Promotions	NA	9

Dependent variables

In our final data set, which included 1,753 person-period observations of 609 unique individuals, we observed 179 voluntary exits and 82 terminations. We analyzed the effects of demographic similarity at the peer and supervisor levels on three different turnover variables. First, we examined whether or not a junior exited the organization either voluntarily or involuntarily, treating promotions during a given period as censored data. Second, we examined voluntary exits, treating terminations and promotions during a given period as censored data. Finally, we examined terminations, treating voluntary exits and promotions during a given period as censored data.

Predictor variables

We created two sets of predictor variables, one for sex and one for race, to measure the demographic similarity of each junior to others in her or his workgroup during a given year. Following Cohen, Broschak and Haveman (1998) and Tolbert et al. (1995), our measures of demographic similarity use the proportion of others in the same demographic category as the focal junior. To measure similarity with seniors, we calculated the proportion of senior professionals in a junior's workgroup who were the same sex as the junior (sex % match–sr) and the percentage of seniors who shared the junior's racial category (race % match–sr). Both sex and racial category were self-declared. The possible racial categories were Caucasian, Asian or Pacific Islander, Black, Hispanic, other ethnicity and undeclared.

We created parallel measures at the peer level: the proportion of other juniors in the workgroup who were the same sex as the focal junior (sex % match–jr) and the proportion of other juniors who were the same racial category as the focal junior (race % match–jr). Since

these percentages are difficult to interpret for extremely small groups, we calculated them only when there are at least two seniors or two other juniors in a junior's workgroup. To account for workgroups with only one or two seniors, we created a dummy variable indicating whether there were fewer than two seniors in the workgroup, and set the senior match variables to zero for observations with too few seniors. We did the same for the junior match variables when the workgroup included fewer than two other juniors. Finally, we created a variable indicating the ratio of seniors to juniors in the junior's workgroup ($\# \text{ seniors in workgroup} / \# \text{ juniors in workgroup}$) and entered this with our predictor variables to control for a junior's overall access to senior professionals.

To test whether demographic similarity with others differentially affected members of underrepresented demographic groups, we standardized our match variables and created interaction terms. We interacted each standardized sex match variable with a dummy variable indicating whether an employee was female (1 =female; -1 = male),⁵ creating one interaction term for senior sex match and another for junior sex match.

To determine which racial minority groups were underrepresented in the firm, we compared a racial group's representation in the population in 2000 with the same group's representation in KLM. Blacks and Hispanics each comprised roughly 12 percent of the U.S. population in 2000 and 2.7 percent of the professionals in KLM. Native Americans made up approximately one percent of population and less than .005 percent of KLM professionals.

⁵ Coding binary variables +1/-1 reduces the correlation between our interaction terms and main effects and facilitates the analysis of interactions. When 0/1 codes are used, the interaction has value only when the dummy is 1; if -1 is used, the interaction term is interpretable in both cases of the binary variable.

These patterns roughly mirror those of similar professionals across the U.S. Thus, we coded Blacks, Hispanics, Native Americans and “others” as underrepresented minorities. In contrast, Asians counted for 3.6 percent of the general population and 9.3 percent of the professionals at KLM. Again, this roughly mirrors representation among professionals across the U.S. Thus, we did not code Asians as underrepresented minorities. Recall that the proportional measures of junior and senior race match variables reflected each junior’s specific racial category—Caucasian, Asian or Pacific Islander, Black, Hispanic or other ethnicity. We interacted the standardized junior race match variable (race % match–jr) with the dummy indicating underrepresented racial group (Black, Hispanic, Native American, or other ethnicity = 1; Asian or Caucasian = -1). Because there were so few underrepresented minorities in the senior ranks at KLM (see **Table 1**), we were not able to interact our under-represented racial group dummy variable with our senior race match variable.

Our analyses included a number of controls accounting for a junior professional’s demographic characteristics and work context. Individual demographic controls included dummy variables indicating sex (female = 1; male = -1), underrepresented racial status (Black, Hispanic, Native American, or other = 1; Asian or Caucasian = -1), undeclared race (undeclared = 1; declared = 0), and a continuous variable denoting the junior’s age in the given year. Work context controls included dummy variables indicating the calendar year in question, the junior’s department, the junior’s location, whether or not the junior was working part-time, and a set of dummies indicating tenure (< 3 years; ≥ 3 years to < 6 years; ≥ 6 years to < 9 years; ≥ 9 years).

We used the following logistic regression specification in our analyses:

$$exit_{jt} = \frac{1}{1 + \exp \left\{ - \left[\begin{aligned} &\alpha + \beta_1 * sex \% match - sr_{jt} + \beta_2 * sex \% match - jr_{jt} + \beta_3 * female_j + \\ &\beta_4 * female_j * sex \% match - sr_{jt} + \beta_5 * female_j * sex \% match - jr_{jt} + \\ &\beta_6 * race \% match - sr_{jt} + \beta_7 * race \% match - jr_{jt} + \beta_8 * minority_j + \\ &\beta_9 * minority_j * race \% match - jr_{jt} + \mathcal{V} * X_{jt} \end{aligned} \right] \right\}}$$

where $exit_{jt}$ was a variable that took on a value of one when junior employee j exited the organization in period t and zero otherwise. Match and ratio variables varied by time period t . For example, $race \% match - sr_{jt}$ equals the proportion of senior employees in the work group of junior employee j during time period t who share j 's declared racial category (and other match variables are defined similarly). X_{jt} was a vector of the control variables, described above.

Results

Table 2 presents means, standard deviations and correlations for the variables in our analyses. **Table 3** presents summary statistics describing the distributions of the match variables in our data set for first year juniors (i.e., juniors in their first year of employment with KLM, regardless of the calendar year in which this took place).

Table 2. Means and standard deviations (before continuous variables were normalized and before dummy variables were transformed to a -1/1 scale) as well as correlations of all transformed variables in person-period data set.

	Mean	Standard Deviation	Promoted	Voluntary Departure	Terminated	Part Time	Age	Female	UR Minority Race	Race Unknown	Race % Match - Sr	Sex % Match - Sr	Race % Match - Jr	Sex % Match - Jr
Promoted	0.03	0.16	1.00											
Voluntary Departure	0.10	0.30	-0.05*	1.00										
Terminated	0.05	0.21	-0.04	-0.07*	1.00									
Part Time	0.07	0.26	-0.03	0.03	0.00	1.00								
Age	33.9	5.88	0.07*	0.01	0.12*	0.13*	1.00							
Female	0.44	0.50	-0.06*	-0.02	0.05*	0.21*	-0.06*	1.00						
UR Minority Race	0.08	0.27	-0.03	0.00	0.07*	0.09*	-0.01	0.06*	1.00					
Race Unknown	0.01	0.12	-0.02	0.03	0.09*	0.01	-0.06*	0.01	-0.03	1.00				
Race % Match - Sr	0.63	0.43	0.09*	-0.04	-0.04	-0.11*	0.01	-0.06*	-0.43*	-0.17*	1.00			
Sex % Match - Sr	0.48	0.36	0.09*	-0.01	-0.05*	-0.15*	-0.01	-0.68*	-0.07*	-0.03	0.29*	1.00		
Race % Match - Jr	0.56	0.35	0.02	-0.02	-0.04	-0.05*	0.04	-0.04	-0.42*	-0.19*	0.67*	0.12*	1.00	
Sex % Match - Jr	0.46	0.26	0.02	0.05*	-0.04	0.00	0.09*	-0.16*	0.03	-0.05	0.05*	0.23*	0.34*	1.00
(# of Seniors in gp)/(# of Juniors in gp)	0.64	0.33	0.08*	-0.07*	0.01	0.023	0.04	0.01	-0.04	-0.018	0.25*	0.23*	-0.12*	-0.15*

* p-value < .05

Table 3. Summary statistics describing match variables in our person-period data set for first year junior employees.¹

	% of Seniors in Group Who Share Race of Juniors Who Are:	
	Caucasian or Asian	Underrepresented Minorities
Average	80%	1%
Std. Dev.	33%	2%
N	335	37
	% of Peers in Group Who Share Race of Juniors Who Are:	
	Caucasian or Asian	Underrepresented Minorities
Average	68%	6%
Std. Dev.	27%	10%
N	332	39
	% of Seniors in Group of the Same Sex as Juniors Who Are:	
	Male	Female
Average	82%	20%
Std. Dev.	17%	19%
N	217	155
	% of Peers in Group of the Same Sex as Juniors Who Are:	
	Male	Female
Average	58%	45%
Std. Dev.	19%	24%
N	211	160

¹ Groups with fewer than two senior employees or three junior employees are excluded from these summary statistics.

All exits

Annual turnover among juniors in our sample averaged 15 percent and the median time to exit was 4.5 years. Models 1 and 2 in **Table 4** present the results of discrete time hazard analyses of all exit events for juniors over the six year period included in our data. Model 1 is a baseline model including only our control variables. The coefficient on the dummy indicating an employee is an underrepresented minority was marginally significant and positive, suggesting underrepresented minorities exited the organization at a higher overall rate than non-Hispanic whites or Asians. Model 2 adds our primary predictor variables. A likelihood ratio test indicated that the additional variables included in Model 2 significantly improved the overall fit of the hazard model, relative to Model 1 (p-value < .01).

Model 2 demonstrates that an increase in the proportion of same sex seniors in a junior's work group marginally reduced the likelihood of exit, providing equivocal support for *H1a*. This effect was significantly larger in the predicted direction for women than for men, supporting *H2*. A 25 percentage point increase in the proportion of senior females decreased the fitted odds of a female junior's exit in any given year by a factor of 1.6, while a 25 percentage point increase in the proportion of senior males decreased the fitted odds of a male junior's exit in a given year by a factor of only 1.2. *H1b* was not supported; the proportion of same-race seniors did not significantly affect juniors' likelihood of exit. (Recall there were too few minority seniors to include an interaction term with underrepresented minorities at the senior level.)

The effect of an increase in the proportion of same sex peers in a junior's workgroup on the likelihood of exit was marginally significant and positive, offering only weak support for *H3a*. An increase in the percentage of same-race peers significantly increased a junior's likelihood of exit, as hypothesized in *H3b*. This effect was exaggerated for underrepresented minorities, supporting *H4*. An increase of 25 percentage points in the percentage of same race peers in the workgroup increased the fitted odds that an underrepresented minority junior would exit by a factor of 3.8. The main effect for underrepresented minority status increased in significance when the demographic similarity variables were added to the regression. The estimated odds of an underrepresented minority leaving the organization in any given year were 5.3 times that of an Asian or Caucasian when relative workgroup composition was held constant. The hypothesized effects were significant even when controlling for the ratio of

seniors to juniors, which had a significant effect on turnover: an increase of one senior for every junior in a junior's workgroup decreased the fitted odds of a junior's exit by a factor of 3.2.

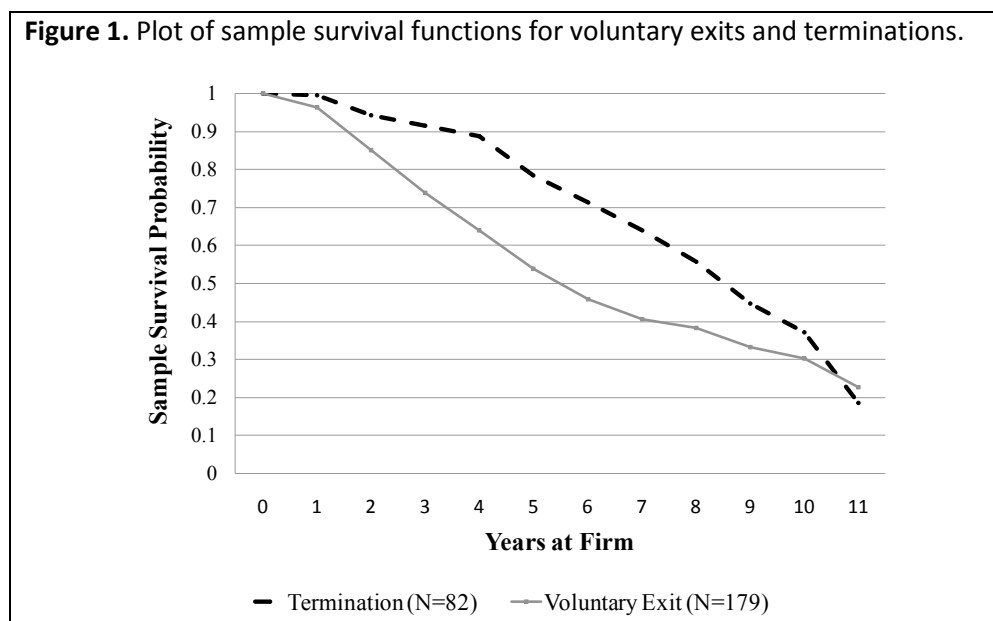
Table 4. The junior employees who exit KLM in a given year are tracked using discrete time survival analysis to examine how the similarities between a junior employee and the senior employees in her work group as well as her work group peers affect her likelihood of exiting overall, voluntarily, or as the result of being terminated. Below are the results of logit regression analyses from equation (1). Standard errors are in parentheses.

	All Exits		Voluntary Exits		Terminations	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual Demography Controls						
Part Time	0.13 (0.28)	-0.04 (0.29)	0.56 [†] (0.32)	0.40 (0.33)	-0.87 [†] (0.51)	-1.17* (0.56)
Age	0.01 (0.01)	0.01 (0.01)	-0.02 (0.02)	-0.02 (0.02)	0.06** (0.02)	0.06* (0.02)
Female	0.01 (0.07)	-0.18 (0.14)	-0.10 (0.09)	-0.26 (0.16)	0.28* (0.13)	-0.06 (0.25)
UR Minority Race	0.24 [†] (0.13)	1.67** (0.60)	0.00 (0.16)	1.52* (0.70)	0.63** (0.19)	1.86 [†] (1.00)
Race Unknown	1.82** (0.47)	1.83** (0.51)	1.08 [†] (0.61)	1.11* (0.67)	3.40** (0.67)	3.49** (0.77)
Years of Tenure Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Relational Demography Predictors (Senior Match)						
Sex % Match - Sr		-0.77 [†] (0.44)		-0.65 (0.53)		-1.16 (0.77)
Female x Sex % Match - Sr		-1.11** (0.39)		-1.37** (0.47)		-0.70 (0.72)
Race % Match - Sr		0.36 (0.32)		0.52 (0.38)		0.07 (0.59)
Relational Demography Predictors (Peer Match)						
Sex % Match - Jr		0.72 [†] (0.39)		1.19* (0.47)		-0.31 (0.68)
Female x Sex % Match - Jr		-0.24 (0.32)		0.21 (0.39)		-0.73 (0.59)
Race % Match - Jr		2.42* (1.15)		2.34 [†] (1.36)		2.46 (1.94)
UR Minority Race x Race % Match - Jr		2.93* (1.16)		3.13* (1.37)		2.37 (1.94)
Senior/Peer Proportion						
(# of Seniors in gp)/(# of Juniors in gp)		-1.17** (0.40)		-1.37** (0.50)		-0.89 (0.63)
Context Controls¹						
Person-Period Observations	Yes	Yes	Yes	Yes	Yes	Yes
Number of Exit Events	1,753	1,753	1,671	1,671	1,574	1,574
Log likelihood	261	261	179	179	82	82
Likelihood-ratio chi ² (A nested in B)	-664.69	-651.44	-513.64	-500.17	-253.32	-248.95
		26.51**		26.94**		8.74

[†]Significant at 10 percent level, *Significant at 5 percent level, **Significant at 1 percent level

¹ Context controls include year dummies, location dummies, department dummies, and workgroup too small dummies when match variables are included.

Models 1 and 2 group voluntary exits and terminations together, treating both forms of exit as the same type of event. A plot of sample survival functions created from our voluntary and involuntary exit data, however, suggested that voluntary and involuntary exit survival functions were quite different (see **Figure 1**). Voluntary exits were more frequent in the early years of employment, while terminations increased later in junior professionals' tenure. We therefore turn to consider the two types of exit events separately.



Voluntary exits

Models 3 and 4 in **Table 4** present the results of discrete time hazard analyses of voluntary exit events. Model 3 is a baseline model including only our control variables; Model 4 adds our predictor variables. A likelihood ratio test showed that Model 4 improved significantly upon Model 3 ($p\text{-value} < .01$). Increases in the proportion of same-sex seniors within a junior's workgroup significantly reduced the likelihood of a junior's voluntary exit for women only,

supporting *H2*. Specifically, an increase of 25 percentage points in the percentage of senior females in a female junior's work group reduced the fitted odds that the female junior would voluntarily exit by a factor of 1.7.

Our qualitative data provided some insight into these findings. Exit interview data suggested that perceptions of senior support varied by gender. Twenty-six percent of the men and 23 percent of the women providing exit interviews mentioned alliances with senior professionals. Seventy-one percent of the males spoke of these relationships in positive terms, while only 29 percent of women portrayed their relationships with seniors as positive. In-person interviews conveyed how heavily junior women relied on senior role models and sponsors. Within-workgroup seniors supplied valued support, feedback and assignments to juniors, and juniors acknowledged a need for senior support in the promotion process. Illustrating this point, a junior female interviewee talked about an early, strategic decision she made to affiliate with a specific group of senior colleagues "because it is an important part of the ... review process here. You need to be recommended by [the seniors in] your group ... so the sooner you are able to start fostering connections within that group, the better." Another junior female whom we interviewed explained:

One of the things that was appealing to me about coming here is that there are actually successful women substantially more senior to me who have...very successful careers and involved lives with their children. That to a large extent sets [KLM] apart. Most places...the more senior women...tend to be a little more off track.

In spite of the presence of senior women in the organization overall, it was the presence of senior women within the small workgroups that drove junior women's perceptions of their own chances for success. Another a junior female interviewee talked about the scarcity of

senior women in her workgroup: “We have in this office one [senior] woman right now ... it is not so much that I need a female mentor, I have found wonderful male mentors, but more that you worry about a signal” about the opportunities for women. Although the limited number of minority seniors did not allow us to test the interaction effects for race, qualitative data suggested minority role models were also seen as critical, though less prevalent overall. One minority junior employee, for example, remarked in her exit interview that KLM had “non-existent real mentoring for minority” juniors.

Supporting *H3a*, Model 4 shows that an increase in the proportion of same-sex peers in a junior’s workgroup significantly increased the odds of exit, as predicted. An increase of 25 percentage points in the proportion of same-sex peers within a junior’s workgroup increased the fitted odds that the employee would voluntarily exit KLM by a factor of 1.4 for females and 1.3 for males. An increase in the proportion of same race peers in a junior’s workgroup only marginally increased the likelihood of the junior’s voluntary exit. This effect was exaggerated for underrepresented minorities, supporting *H4*. Specifically, an increase of 25 percentage points in the percentage of same race peers in an underrepresented minority junior’s workgroup increased the fitted odds that the employee would voluntarily exit by a factor of 3.9. The main effect of being an underrepresented minority on the likelihood of exit became significant when workgroup demographic match characteristics were added to the analysis. The estimated odds of an underrepresented minority voluntarily exiting the organization in any given year were 4.6 times that of an Asian or Caucasian, holding relative workgroup composition constant.

The qualitative data offered a nuanced explanation for these peer effects. Interviews with junior professionals revealed palpable competition for senior sponsorship within the workgroup. According to one junior, the KLM workgroup was a “small enough group that adding new people can really change the balance and affect your relationship with the bosses.” In-person and exit interviews provided plenty of evidence that promotion weighed heavily on the minds of junior professionals and that the up-or-out nature of the process engendered competitive comparisons among peers. One junior complained: “I am treated more as a fungible good here ... and if I leave ... they can hire any [person like me] coming out of school ... [to] work seven days a week and do my job.” Perceptions that peers were pitted against one another by the very nature of the promotion process appeared especially marked among underrepresented minorities. An exiting African American woman censured the organization in her final interview, stating that “treatment of minorities feels like affirmative action” and that she was “graded harder because [she was a] minority.”

The qualitative data indicated insufficient social cohesion among junior peers to offset the demands for competition. Professionals reported that interaction among peers could and did occur, although infrequently, sometimes for collaboration and other times for purely social reasons. In spite of this, an exiting male expressed disappointment with the social interaction at KLM, stating that he had “expected direct interaction and more of a team environment.” Another exiting junior noted that “interactions were fine but sometimes rare, as the job can be isolating.”

Involuntary exits

Models 5 and 6 turn to an analysis of the causes of involuntary exits from KLM (see **Table 4**). Model 5 is a baseline model including only the control variables. Model 6 adds our primary predictor variables. The pattern of effects suggested by the coefficients on the individual demographic controls in these models was quite different from that in Models 3 and 4, supporting the possibility that voluntary and involuntary turnover events were driven by different factors. In Models 5 and 6, we see that an increase in the age of a junior employee was associated with an increase in the likelihood that he or she would be terminated, a pattern not present in Models 3 and 4. Also differing from voluntary exit, part-time employees were marginally less likely than full-time employees to be terminated, contrasting with the marginally significant, but positive coefficient for part-time in Model 3.

A likelihood ratio test indicated that our demographic match predictor variables did not improve the predictive power of Model 6 over the simpler Model 5. One interpretation of this result is that the patterns we observe in Model 2, which are broadly consistent with our hypotheses, were driven by voluntary exit events primarily and not by termination events. Alternatively, the small number of termination events in our termination data set may limit our power to the point that we cannot assess the relationship between workgroup characteristics and terminations. While none of the coefficients on the workgroup demography variables included in Model 6 was significant, with the exception of sex match variables at the peer level, the coefficients on demographic match variables in Model 6 were directionally similar to those in Model 4, suggesting it would be unwise to draw any strong conclusions about whether terminations were entirely distinct from voluntary exits.

Discussion

Workgroup sex and race composition drive both competitive and cooperative processes within identity groups, affecting the turnover of professionals. Our quantitative and qualitative data revealed the nature and results of these dual processes of social identification. In the up-or-out knowledge organization we studied, working with same sex superiors increased the likelihood that a junior professional would remain in the organization, while working alongside same sex and same race peers made it more likely that a junior professional would exit. Reflecting social cohesion within subordinate-supervisor relationships, juniors identified demographically similar seniors as role models and turned to them for support and sponsorship. Reflecting positive upward social comparisons across hierarchical levels, junior professionals looked to the relative presence of demographically similar seniors to predict whether people like themselves could succeed in the organization. Among peers, however, the potentially positive role for social cohesion was compromised by minimal interaction in day-to-day work, while limited opportunities for promotion lent a distinctly competitive note to peer-to-peer social comparisons. Junior professionals perceived that they were “fungible goods,” easily replaced by others of the same sex and race. Our data suggested that both the cooperative and the competitive effects were felt more acutely by women and members of underrepresented racial minorities.

Integrating social comparison research with work on social cohesion, and considering effects within and across hierarchical levels in organizations, illuminates a complex set of social identity processes in organizations. Our findings regarding the cooperative effect of shared

identity group affiliation at the subordinate-superior level are consistent with previous relational demography research (Tsui and O'Reilly, 1989; Avery, et al., 2008). In contrast to these positive effects across hierarchical levels, however, we found that shared demographic characteristics among peers can lead to competitive identification processes, with demographically similar professionals vying for limited access to support and promotions. These results at the peer level build on Ely's (1994) and Tolbert et al.'s (1995) findings regarding competitive pressures among professional women in male-dominated institutions, although neither of these studies were able to trace the effects of these competitive pressures on individuals' careers. Our data point to similar competitive effects at the peer level for sex and race, and allow us to measure the effects of sex and race composition in the local workgroup on individuals' career mobility.

Past research strongly suggests that minority status underlies the competitive effects we observe. Negative perceptions and outcomes of underrepresented groups are believed to result from social competition—as the representation of women rises, competitive pressures make the workplace increasingly oppressive until women gain sufficient power to overcome this force. Kanter's seminal work (1977a) pointed to an inflection point at roughly 40 percent—when the minority group reaches that level in the organization, negative effects on the minority group are expected to fall away. Research that followed confirmed this approximate cutoff, at least for women professionals (Ely, 1994; Allmendinger and Hackman, 1995; Tolbert, et al., 1995). Our findings suggest there may be a critical distinction between senior and junior women in this equation—even small increases in the proportion of senior women make a

workplace *more* attractive to junior women, while increasing proportions of junior women may reduce its appeal. Tolbert et al.'s (1995) findings suggest these countervailing forces may have been present in the academic institution they studied, but their analyses do not allow clear specification of workgroup composition effects across levels. Because our study is within one organization, we were unable to test whether competitive effects at the peer level change when female representation climbs above 40 percent overall. We did, however, find that the competitive effect of demographically similar peers on voluntary exit held roughly equally for men and women, suggesting that there may be competition within an identity group regardless of the majority or minority status of that identity group.

Our data do not allow us to directly specify the mechanisms underlying our findings. The effects we detect in our analyses of junior turnover are likely driven by human resource constraints in up-or-out knowledge organizations, where senior sponsorship is coveted and competition for promotion is intense. Comments made by current employees during interviews, as well as departing employees at the time of their exit, suggested that limited access to seniors underlies the competitive effects at the junior level, at least in part. This perspective is supported by our finding that as the ratio of seniors to juniors in a junior's workgroup increased, the likelihood that the junior would exit decreased, suggesting that overall access to senior sponsorship reduced competition and turnover. Future research should explore the hypothesis that responses to workplace sex and race composition vary with the competitive dynamics in an organization: as necessary resources for success in competitive

work environments become increasingly scarce, demographically similar peers may engage in fewer cooperative interactions and competitive dynamics among them may increase.

It is possible that unmeasured variables that happen to be correlated with the social identity variables of interest in this study are driving exit events. One such possibility is suggested by Wharton and Baron's research showing men's satisfaction and self-esteem at work is highest in work settings with roughly equal proportions of men and women (Wharton and Baron, 1987), while women's satisfaction is highest in predominately male work settings and lowest in female-dominated workplaces (Wharton and Baron, 1991). Because satisfaction is a critical factor influencing turnover and may also be affected by social cohesion and social comparison, it would be instructive for future studies to collect data on satisfaction as well as cooperation, competition and turnover. At the organizational level, Baron, Hannon and Burton (2001) found that changes in an organization's dominant employment model affect employee turnover. Interviewees suggested that the culture at KLM was contested, with a strong merit-based employment model and a more relational employment model vying for dominance. This contestation may have had differential effects across demographic groups. Though it is difficult to see exactly how this could account for our findings, the underlying culture of the organization needs to be considered as a possible boundary condition limiting the interpretation of our results. Ideally, future research would include multiple organizations as well as a number of additional controls we would have liked to include had they been available, such as productivity and compensation.

We tested our hypotheses using six years of turnover data from a large organization, but there were still not enough observations available for us to examine a number of questions of interest. Because there were so few senior professionals from underrepresented racial groups, we were unable to assess the impact of senior-junior racial match on the likelihood of juniors from underrepresented groups exiting the organization, relative to others. Similarly, there were too few promotions during the period studied for us to determine whether the cooperative and competitive identity effects driving exits exerted the opposite influence on the likelihood of promotion. These questions are critical for theory as well as practice and can be addressed in the future with studies of multiple organizations over a longer time span.

Distinguishing between the effects of demographic match among peers and across hierarchical levels offers clearer identification of the influence of workforce sex and race composition on career mobility. Cohen et al. (1998) provided compelling evidence that studies of organizational sex composition and career mobility need to consider effects at multiple levels. Combining our findings regarding the increased likelihood of employee exit when there are more demographically similar peers with their finding that women are more likely to be hired and promoted into job levels in which there are already higher proportions of women (Cohen, et al., 1998) presents a conundrum for organizations—are more women coming into organizations only to leave or be driven out by lack of social cohesion and competitive social comparisons? If so, this could explain the continued underrepresentation of women (and perhaps underrepresented racial minorities) in senior positions across knowledge organizations, in spite of their growing representation at junior levels.

Our findings have important implications for those running knowledge organizations. We highlight the importance of considering both cooperative and competitive effects of demographic similarity for those interested in addressing the problem of persistent underrepresentation of women and minorities at the highest levels in knowledge organizations. Our findings suggest that clustering same race or same sex junior employees to provide an increased sense of community may have the opposite effects of those desired unless accompanied by similar or greater increases in the diversity of senior professionals. Furthermore, our results call for organizations to attend to the ways in which policies and practices invoke competition and comparison within demographic categories, rather than facilitating evaluation and promotion practices that *are* blind and are *believed to be* blind to the demographics of the candidates.

References

Allmendinger, J. and J. R. Hackman

1995 "The more, the better? A four-nation study of the inclusion of women in symphony orchestras." *Social Forces*, 74: 423-460.

Avery, Derek R., Patrick F. McKay, and David C. Wilson

2008 "What Are the Odds? How Demographic Similarity Affects the Prevalence of Perceived Employment Discrimination." *Journal of Applied Psychology*, 93: 235-249.

Barker, Emily

2008 "DIVERSITY SCORECARD 2008: Cleary, Wilson Sonsini on Top." *The Minority Law Journal*.

Barker, Patricia, Kathy Monks, and Finian Buckley

1999 "The Role of Mentoring in the Career Progression of Chartered Accountants." *British Accounting Review*, 31: 297-312.

Baron, J. N., M. T. Hannan, and M. D. Burton

2001 "Labor Pains: Change in Organizational Models and Employee Turnover in Young, High-Tech Firms" *American Journal of Sociology*, 106: 960-1012.

Berger, Joseph, H. Famit Fisek, Robert Z. Norman, and Morris E. Zelditch

1978 *Status Characteristics and Social Interaction: An Expectation-States Approach*. New York: Elsevier.

Bertrand, M., C. Goldin, and L. F. Katz

2008 "Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors." Draft. September, 30: 2008.

Blanton, H.

2001 "Evaluating the self in the context of another: The three-selves model of social comparison assimilation and contrast." 75-87.

Bobo, Lawrence and Vincent L. Hutchings

1996 "Perceptions of Racial Group Competition: Extending Blumer's Theory of Group Position to a Multiracial Social Context." *American Sociological Review*, 61: 951-972.

Brass, Daniel J.

1984 "Being in the right place: A structural analysis if Individual Influence in an organization." *Administrative Science Quarterly*, 29: 518-539.

1985 "Men's and women's networks: A study of interaction patterns and influence in an organization." *Academy of Management Journal*, 28: 327-343.

Brewer, M. B. and J. G. Weber

1994 "Self-evaluation effects of interpersonal versus intergroup social comparison." *Journal of Personality and Social Psychology*, 66: 268.

Burkhardt, Marlene E.

1994 "Social interaction effects following a technological change: A longitudinal investigation." *Academy of Management Journal*, 37: 869-898.

Burt, Ronald S.

1997 "The Contingent Value of Social Capital." *Administrative Science Quarterly*, 42.

1998 "The Gender of Social Capital." *Rationality and Society*, 10: 5-46.

Cohen, Lisa E., Joseph P. Broschak, and Heather A. Haveman

1998 "And Then There Were More? The Effect of Organizational Sex Composition on the Hiring and Promotion of Managers." *American Sociological Review*, 63: 711-727.

Coleman, James S

1988 "Social capital in the creation of human capital." *American Journal of Sociology*, 94: S95-S120.

Collins, Judith

2009 "Law Firm Diversity Demographics Show Little Change, Despite Economic Downturn: Representation in Some Markets Declines While Others Show Small Gains." *NALP: The Association for Legal Career Professionals*.

Cota, Albert A. and Kenneth L. Dion

1986 "Salience of gender and sex composition of ad hoc groups: An experimental test of distinctiveness theory." *Journal of Personality and Social Psychology*, 50: 770-776.

Elvira, M. M. and L. E. Cohen

2001 "Location matters: A cross-level analysis of the effects of organizational sex composition on turnover." *Academy of Management Journal*: 591-605.

Ely, Robin J.

1994 "The Effects of Organizational Demographics and Social Identity on Relationships among Professional Women." *Administrative Science Quarterly*, 39: 203-238.

Festinger, L.

1954 "A theory of social comparison processes." *Human Relations*, 7: 117.

Foley, Sharon, Frank Linnehan, Jeffrey H. Greenhaus, and Christy H. Weer

2006 "The Impact of Gender Similarity, Racial Similarity, and Work Culture on Family-Supportive Supervision." *Group & Organization Management*, 31: 420-441.

Frale, Deborah E. S.

1997 "Gender, racial, ethnic, sexual, and class identities." *Annual Review of Psychology*, 48: 139.

Frankenberg, R.

1993 *White women, race matters: The social construction of whiteness*: University of Minnesota Press.

Gandz, J. and V. V. Murray

1980 "The experience of workplace politics." *Academy of Management Journal*: 237-251.

Gastorf, J. W. and J. Suls

1978 "Performance evaluation via social comparison: Performance similarity versus related-attribute similarity." *Social Psychology*: 297-305.

Goldin, Claudia

2006 "The quiet revolution that transformed women's employment, education and family." *American Economic Review*, 96: 1-21.

Groysberg, Boris, Jeffrey T. Polzer, and Hillary A. Elfenbein

2009 "Too Many Cooks Spoil The Broth: How High Status Individuals Decrease Group Effectiveness."

Harrison, David A., Kenneth H. Price, and Myrtle P. Bell

1998 "Beyond Relational Demography: Time and the Effects of Surface- and Deep-Level Diversity on Work Group Cohesion." *Academy of Management Journal*, 41: 96-107.

Hoffman, Eric

1985 "The effect of race-ratio composition on the frequency of organizational communication." *Social Psychology Quarterly*, 48: 17-26.

Hogg, Michael A. and Deborah J. Terry

2000 "Social Identity and Self-Categorization Processes in Organizational Contexts." *Academy of Management Review*, 25: 121-140.

Ibarra, Herminia

1992 "Homophily and differential returns: Sex differences in network structure and access in an advertising firm." *Administrative Science Quarterly*, 37: 422-447.

1993 "Personal Networks of Women and Minorities in Management: A Conceptual Framework."

Academy of Management Review, 18: 56-87.

1995 "Race, opportunity, and diversity of social circles in managerial networks." *Academy of Management Journal*, 38: 673-703.

1999 "Provisional selves: Experimenting with image and identity in professional adaptation."

Administrative Science Quarterly, 44.

Inc., Working Mother Media

2007.

Kanter, Rosabeth Moss

1977a Men and Women of the Corporation. New York: Basic Books.

1977b "Some effects of proportions on group life: Skewed sex ratios and responses to token women." American Journal of Sociology, 82: 965.

Kruglanski, Arie W. and Ofra Mayseless

1990 "Classic and current social comparison research: Expanding the perspective." Psychological Bulletin, 108: 195-208.

Lawrence, B. S.

1997 "The black box of organizational demography." Organization Science, 8: 1-22.

Maccoby, E. E.

1988 "Gender as a social category." Developmental Psychology, 24: 755-765.

Major, Brenda and Blythe Forcey

1985 "Social comparisons and pay evaluations: Preferences for same-sex and same-job wage comparisons." Journal of Experimental Social Psychology, 21: 393-405.

Major, Brenda, Dean B. McFarlin, and Diana Gagnon

1984 "Overworked and underpaid: On the nature of gender differences in personal entitlement." Journal of Personality and Social Psychology, 47: 1399-1412.

McGuire, Gail M.

2002 "Gender, Race, and the Shadow Structure: A Study of Informal Networks and Inequality in a Work Organization." Gender & Society, 16: 303-322.

McPherson, M., L. Smith-Lovin, and J. M. Cook

2001 "Birds of a feather: Homophily in social networks." Annual Review of Sociology, 27: 415-444.

Mehra, A., M. Kilduff, and D. J. Brass

1998 "At the margins: A distinctiveness approach to the social identity and social networks of underrepresented groups." Academy of Management Journal: 441-452.

Miller, C. T.

1982 "The role of performance-related similarity in social comparison of abilities: A test of the related attributes hypothesis." Journal of Experimental Social Psychology, 18: 513-523.

Mussweiler, T.

2003 "Comparison processes in social judgment: Mechanisms and consequences." Psychological Review, 110: 472-488.

O'Reilly III, Charles A., David F. Caldwell, and William P. Barnett

1989 "Work Group Demography, Social Integration, and Turnover." Administrative Science Quarterly, 34: 21-37.

Payne, Stephanie C. and Ann H. Huffman

2005 "A Longitudinal Examination of the Influence of Mentoring on Organizational Commitment and Turnover." *Academy of Management Journal*, 48: 158-168.

Pelled, Lisa Hope and Katherine R. Xin

2000 "Relational Demography and Relationship Quality in Two Cultures." *Organization Studies*, 21: 1077-1094.

Porter, J. R. and R. E. Washington

1993 "Minority Identity and Self-Esteem." *Annual Review of Sociology*, 19: 139-161.

Ragins, Belle Rose and Dean B. McFarlin

1990 "Perceptions of mentor roles in cross-gender mentoring relationships." *Journal of Vocational Behavior*, 37: 321-339.

Reskin, B. F., D. B. McBrier, and J. A. Kmec

1999 "The determinants and consequences of workplace sex and race composition." *Annual Review of Sociology*, 25: 335-361.

Roberson, Loriann , Benjamin M. Galvin, and Atira Cherise Charles

2007 "When Group Identities Matter: Bias in Performance Appraisal." *The Academy of Management Annals*.: 617 - 650: Publisher: Routledge.

Roth, L. M.

2003 "Selling women short: A research note on gender differences in compensation on Wall Street." *Social Forces*: 783-802.

Scandura, T. A.

1992 "Mentorship and career mobility: An empirical investigation." *Journal of Organizational Behavior*, 13.

Scandura, T. A. and Ralph E. Viator

1994 "Mentoring in public accounting firms: An analysis of mentor-protege relationships, mentorship functions, and protege turnover intentions." *Accounting, Organizations and Society*, 19: 717-734.

Sherer, P. D.

1994 "Leveraging human assets in law firms: Human capital structures and organizational capabilities." *Indus. & Lab. Rel. Rev.*, 48: 671.

Singer, Judith D. and John B. Willett

1993 "It's About Time: Using Discrete-Time Survival Analysis to Study Duration and the Timing of Events." *Journal of Educational and Behavioral Statistics*, 18: 155-195.

Smith, R. A.

2002 "Race, gender, and authority in the workplace: Theory and Research." *Annual Review of Sociology*, 28: 509-542.

Sørensen, Jesper B.

2000 "The Longitudinal Effects of Group Tenure Composition on Turnover." *American Sociological Review*, 65: 298-310.

South, S. J., C. M. Bonjean, W. T. Markham, and J. Corder

1982 "Social structure and intergroup interaction: Men and women of the federal bureaucracy." *American Sociological Review*: 587-599.

Stott, C. and J. Drury

2004 "The importance of social structure and social interaction in stereotype consensus and content: Is the whole greater than the sum of its parts?" *European Journal of Social Psychology*, 34: 11-23.

Tajfel, H.

1974 "Social identity and intergroup behaviour." *Social science information*, 13: 65.

Tajfel, H. and J. C. Turner

1986 "The social identity theory of intergroup behavior." *Psychology of intergroup relations*, 2: 7-24.

Tolbert, P. S., T. Simons, A. Andrews, and J. Rhee

1995 "The effects of gender composition in academic departments on faculty turnover." *Industrial and Labor Relations Review*: 562-579.

Tsui, Anne S and Charles A. O'Reilly

1989 "Beyond Simple Demographic Effects: The Importance of Relational Demography in Superior-Subordinate Dyads." *Academy of Management Journal*, 32: 402-423.

Tsui, Anne S. , Lyman W. Porter, and Terri D. Egan

2002 "When both similarities and dissimilarities matter: Extending the concept of relational demography." *Human Relations*, 55: 899 - 929.

Tsui, Anne S., Terri D. Egan, and Charles A. O'Reilly

1992 "Being Different: Relational Demography and Organizational Attachment." *Administrative Science Quarterly*, 37: 549-579.

Turner, J. H.

1988 *A theory of social interaction*: Stanford University Press.

Tyler, Tom, R.

1999 "Why people cooperate with organizations: An identity-based perspective." In B. M. S. R. Sutton (ed.), *Research in Organizational Behavior*: 201-246. Greenwich, CT: JAI.

Vecchio, Robert P. and R. Craig Bullis

2001 "Moderators of the Influence of Supervisor-Subordinate Similarity on Subordinate Outcomes." *Journal of Applied Psychology*, 86: 884-896.

Von Nordenflycht, Andrew

2010 "What is a Professional Service Firm? Toward a Theory and Taxonomy of Knowledge-Intensive Firms." *Academy of Management Review* 35: 155 - 174

Wagner, W. G., J. Pfeffer, and C. A. O'Reilly

1984 "Organizational demography and turnover in top-management group." *Administrative Science Quarterly*: 74-92.

Wharton, A. S. and J. N. Baron

1987 "So happy together? The impact of gender segregation on men at work." *American Sociological Review*, 52: 574-587.

1991 "Satisfaction? The psychological impact of gender segregation on women at work." *The Sociological Quarterly*, 32: 365-387.

Wheeler, L, R Martin, and J Suls

1997 "The proxy model of social comparison for self-assessment of ability." *Personality and Social Psychology Review*, 1: 54.

Williams, K. Y. and C. A. O'Reilly

1998 "Demography and diversity in organizations: A review of 40 years of research." *Research in Organizational Behavior*, 20: 77-140.