Mixed Effects: Examining the Relationships of Job Dissolution to Job-Gender Composition and Mobility

Matissa Hollister, McGill University
Lisa E. Cohen, McGill University
Joseph P. Broschak

Abstract

In this paper, we argue that ignoring job dissolution is problematic when trying to understand the effects of gender composition on mobility due to the complex dynamic between gender composition, mobility, and job dissolution. Building from research on the gendering of work, workplace diversity, and job dissolution, we describe three pathways through which job gender composition, incumbent mobility, and job dissolution are interlinked to create this complex dynamic: one pathway where gender composition causes both job mobility and job dissolution through a set of shared mechanisms; one where job mobility is a cause of job dissolution; and one where job dissolution is a cause of job mobility. We explore these relationships in data on key personnel from U.S. advertising agencies over a 13-year period. After initially estimating the effects of job gender composition on incumbent mobility and job dissolution separately, we reach strikingly different conclusions when we consider the two outcomes jointly, examining mobility patterns in jobs that persist versus jobs that are dissolved. These results both demonstrate the perils of overlooking the role of job dissolution and challenge current theorizing about organizational decision-making processes, the drivers of job dissolution, and the role that gender composition may play in these decisions.

Key Words: Diversity, mobility, job structures, stratification
Introduction

Scholars have long recognized that access to jobs with better or worse mobility prospects plays an important role in creating, perpetuating, and potentially reducing gender inequality at work. However, in examining these phenomena, much of the extant research on mobility and its correlation with gender composition takes for granted that the set of jobs through which movement occurs is static: that is, that new jobs are not created and that existing ones are not dissolved. In this paper, we problematize the assumption of stable positions. We argue that this assumption is both wrong – that job structures do change – and misleading. Failing to account for changes in job structures may lead to misconceptions about how gender composition affects mobility. Thus, we examine the relationship between gender composition and mobility from a different angle by asking how the gender composition of a job influences the stability and mobility (promotions, exits, moves) patterns of the job itself and how those mobility patterns vary depending on whether or not the position is dissolved – that is, whether a specific administrative job title, and thus presumably the particular bundling of tasks under it, vanishes. Drawing upon literature on gendered work, workplace diversity, and job dissolution, we outline two sets of mechanisms through which the gender composition of a job might be linked to its mobility outcomes and job dissolution. One set focuses on the types and characteristics of the work typically done by women while the second set examines the day-to-day dynamics within gender diverse workgroups.

We shift the unit of analysis of research on gender to the job, in contrast to previous work that has focused on the individual, the workgroup, or the organization. This job centric approach provides distinctive insights into the effects of gender as a critical structural factor. Individual-level analyses might predict that women in general will have differential mobility rates, for instance because women are more likely to leave the labor force for periods due to childbirth (Hollister, 2012; Stewart, 2000) or because gender discrimination affects mobility opportunities (Spilerman & Petersen, 1999). Organizational-level analyses might focus on how organizational policies and practices differentially shape opportunities for men and women, for instance, because organizational policies and practices are not in fact gender neutral (Castilla, 2008). We go beyond these approaches to argue that the
gender composition of a job will affect its mobility and dissolution outcomes in ways not captured by the simple aggregation of individual effects or through more macro organizational analyses.

A critical feature of our work is that we consider the possibility that job structures are not always stable and that instability in jobs shapes and is shaped by gender composition. In the context of the professional service firms and universities where much of the previous research was conducted (e.g., McGinn & Milkman, 2013; Tolbert, Simons, Andrews, & Rhee, 1995), the structure of the jobs of professors, attorneys, accountants, and consultants may in fact remain largely stable. Such organizations may primarily remove or add slots to existing jobs – one more or one less assistant professor or associate attorney – but not completely dissolve or create positions. However, this type of stability does not always describe the state of jobs. Indeed, research, mostly unrelated to questions of gender demography and mobility, has described shifts in job structures at the societal and occupational level in response to events such as economic expansions and contractions, industry dynamics, technological shifts and even social movements (e.g., Dencker, 2008; Haveman & Cohen, 1994; Stewman, 1988). Further, a small but growing body of evidence makes it clear that within organizations, even in highly bureaucratic ones, job structures are not static: new jobs are created and, more importantly for our study, existing jobs are dissolved (e.g., Cohen & Broschak, 2013; Hasan, Ferguson, & Koning, 2015; Haveman, Broschak, & Cohen, 2009; Miner, 1991).

Given evidence that job structures do shift, it is critical to further consider whether and how such shifts might play into the differences in mobility patterns commonly associated with gender. Both theory and logic suggests that there would be considerable interplay between incumbent mobility, job dissolution, and job gender composition. This interplay could occur through multiple pathways. First, theories of gendered jobs and diversity provide mechanisms that would link the presence of women and gender diversity with both worse mobility outcomes and higher rates of job dissolution. Second, higher rates of mobility from jobs may themselves increase job dissolution. By its nature, mobility creates vacancies and constantly filling vacancies is costly. The organization may decide that maintaining jobs with high rates of mobility is not worth the cost. In addition, job vacancies created by mobility provide increased opportunities to discontinue the job and because it is much easier to decide not to fill a vacant position than dismantle a position with incumbents. Further,
decision-makers may interpret vacancies as a sign that there are problems in a job and respond by dissolving it. In yet a third pathway, the decision to dissolve a job will itself create incumbent mobility since by definition incumbents cannot remain in a job if it is dissolved.

Unfortunately, as we will discuss in more detail later, assessing the direction of these influences empirically is challenging. The nature both of the data and of the phenomena mean that typical approaches such as mediation analysis or two stage models are not appropriate. In this study, we employ a simple yet novel approach of examining the relationship between job gender composition and mobility separately for jobs that persist and jobs that do not. This approach, while not resolving all causality questions, affords valuable leverage to answering these questions.

As we will show, failing to account for this third direction of influence – that job dissolution can lead to mobility – has important empirical and theoretical implications. Empirically, measuring incumbent mobility without accounting for structural job change can yield misleading results. We show that what initially appears to be an effect of gender composition on mobility is instead an effect of gender composition on job dissolution, which only indirectly leads to mobility. While such a difference may seem trivial, it points to very different mechanisms for how gender composition is tied to mobility, mechanisms that to date have not been considered in the literature. Our findings therefore identify a key gap in theory: the need to consider how job gender composition might impact organizational decision-making, such as preserving or eliminating a job, through mechanisms that do not also involve higher incumbent mobility.

We examine these issues using unique data on the key personnel of a sample of 151 U.S. advertising agencies between 1986 and 1998. It is important to study these processes within these high-profile positions because the effects of job movements and job dissolution within these positions cascade throughout the organization. These employees shape the strategy, structure, staffing, and activities of everyone in organizations (Cohen & Huffman, 2007; Huffman, Cohen, & Pearlman, 2010; Stainback, Tomaskovic-Devey, & Skaggs, 2010). Thus, the work done in these top jobs influences operations throughout entire organizations, making it likely that structural changes observed in these jobs and the movement of people through these jobs have significant organizational and society-wide implications. The fact that the dataset covers many agencies within an industry and
reports the key personnel as reported by the agency allows us to examine these questions and disentangle competing effects in ways that are not possible with alternative data sources.

We find that, after controlling for job characteristics and the gendering of jobs, mixed-gender jobs have higher rates of both mobility and job dissolution compared to single-gender -- male or female -- jobs. However, the analysis highlights how these two outcomes of mobility and dissolution are intimately tied in ways that the literature has not considered. Indeed, we show that examining each outcome separately is misleading and their causal order confusing. By considering the outcomes simultaneously, we are not only able to parse apart these effects but we also reveal results that highlight the failure of the current theories on diversity to acknowledge the mechanisms linking these three factors of gender, job dissolution, and mobility.

**Gender Composition, Employee Mobility, and Job Dissolution**

We draw on three bodies of research to develop predictions on the relationships between job gender composition, mobility, and job dissolution: the literature on the gendering of work, that on workgroup diversity, and that on job dissolution. Based on this literature, we argue that there is a complex interplay between job gender composition, job mobility and job dissolution which we depict in Figure 1 as a series of pathways. The first of these, Pathway A, shows gender composition affecting both job mobility and job dissolution through a set of shared or common mechanisms. For the other pathways, B and C, job mobility is both the cause and consequence of job dissolution; to the degree that gender composition shapes each of the outcomes, it also indirectly shapes the other. These indirect effects, if ignored, raise the danger of misinterpreting the true nature of the relationships. In the following sections, we explore the mechanisms that might drive this interplay.

**Insert Figure 1 about here**

In developing our predictions we define jobs with “worse” mobility outcomes as those with low rates of promotion and high rates of exits or moves. A job with “high turnover,” meanwhile, would have high rates of all types of mobility. Two bodies of research – one on the effects of job

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1 We recognize that exits would not be bad for the incumbents if they are moving to better positions in new firms, but high exits combined with low promotion rates would generally indicate worse outcomes. In addition, high exits will generally indicate problems for the organization even if the incumbents are better off.
gendering and one on effects of diversity – point to ways in which a job’s gender composition might affect these mobility outcomes.

Our second outcome, job dissolution, has received only limited research attention, and the existing literature has rarely addressed its potential relationships with either mobility or gender composition. A decision about a job’s fate can be seen as a summary decision on the value of that job. Altering job structures is an undertaking with high costs in terms of time, worry and inefficiency (Stinchcombe, 1965) and discontinuing jobs is no different. Both theory and a small body of evidence suggest that the dissolution of a job is a major undertaking and reflects an assessment, conscious and otherwise, that a job is problematic in its current form or does not add sufficient value to the organization (Cohen, 2016; Hasan et al., 2015; Miner, 1991; Stewman, 1988). Certain jobs and incumbents may be allowed greater protection from this fate to the degree that those jobs are filled by powerful or valued incumbents or seen as core to the organization’s functioning (Cohen, 2016). Thus, a job’s fate provides insight into how an organization views a particular job and its incumbents.

**Pathway A: Common Causes of Incumbent Mobility and Job Dissolution**

The first pathway through which gender composition is linked to mobility and job dissolution is through what we term “common causes”: job gender composition is correlated with factors that then lead to both mobility and job dissolution. Indeed, almost all of the mechanisms that we could identify in the existing literature would be considered common cause mechanisms.

A first set of literature highlights the fact that work is strongly gendered, with men and women often occupying different jobs (Bielby & Baron, 1984; Petersen & Morgan, 1995). Women’s jobs tend to be peripheral and less prestigious: jobs in non-core functions, that are more specialized, that are lower level and that have lower tenure (see Ridgeway, 2011 for a review). This literature shows that a job’s gender composition is often correlated with its quality and status, both because women are excluded from higher status jobs and because jobs widely held by women (for instance teachers) tend to be undervalued. One line of evidence shows, for instance, that occupations and jobs with higher proportions of men typically offer higher pay and greater opportunity than those with a higher proportion of women (Barnett, Baron, & Stuart, 2000; Doering & Thébaud, 2017; Elvira & Graham, 2002; Pfeffer & Davis-Blake, 1987; Ridgeway, 2011). Further evidence of the devaluing of
women’s work comes from research showing that women’s entrée into more prestigious occupations and jobs is often accompanied with a drop in pay and prestige (England, 2010; Hollister, 2015; Mandel, 2013).

There are varied explanations for these phenomena on both the supply and demand side of the employment relationship: employers underestimate the skills needed for jobs more typically held by women; the emotional labor performed by women may not be valued; women may face barriers to entering more prestigious jobs and occupations; women may be attracted to lower paid jobs that offer flexibility desired to meet family needs. This array of explanations suggests that the devaluing of jobs held by women may occur in either of two directions: the presence of women lowers the value of jobs; women are given jobs that already have lower value (Reskin & Roos, 1990). Regardless of whether incumbents confer value on the job or the job confers value on incumbents, the jobs that women hold will tend to be less valued, of lower quality, and lower status, and thus we would expect them to offer worse mobility opportunities and thus exhibit worse mobility patterns. Based on these same mechanisms of lower value, quality, and status, we would also expect that jobs held by women will be more likely to be dissolved.

The gendering of work literature points to two distinct elements in its predictions. First, since the gendering of work emphasizes the disadvantaged position of women, it generally predicts monotonically increasing effects as a job is increasingly dominated by women. In other words, it predicts that jobs with the highest proportion of women will have the worst mobility outcomes and highest dissolution rates. A second feature of the gendering of work literature is that it points to a society-wide phenomenon where women are disproportionately located in specific types of jobs. Jobs with high proportions of women are more likely to be at lower levels (vertical segregation) or in less central parts of an organization (horizontal segregation). Certain jobs are also likely to be held by women across all firms within an industry because they are considered “women’s work” (the gendering of work), for instance clerical or human resources positions. Therefore, measures of a job’s organizational location as well as the industry-level gender composition of a job, which would assess the extent to which a certain job is held consistently by women across firms, should capture much of the effects predicted by the gendered work literature.
Research on workgroup diversity outlines a second set of mechanisms that might serve as common causes to our outcomes. This literature generally focuses on how diversity impacts team dynamics and not on cases where men and women share the same job title, which is our focus. However, we argue that many of the challenges and benefits of diverse teams highlighted in this literature would also be present, although perhaps to a weaker degree, in diverse jobs because employees holding the same title both compete and coordinate their work as do those in diverse workgroups. The workgroup diversity research highlights ways in which the day-to-day experiences of employees might be influenced by gender composition that might apply equally to a specific job as it does to the team. Some diversity scholars predict positive outcomes related to diversity such as more diversity in ideas and better information processing. However, many in this research area predict negative effects of diversity by drawing from theories of homophily, similarity attraction, and social categorization, arguing that diversity may lead to more negative outcomes (Allmendinger & Hackman, 1996; Wharton & Baron, 1987, 1991; Williams & O'Reilly, 1998). Research in this tradition suggests that diversity in social category membership within a group will lead to higher levels of relationship conflict – relating to factors such as personalities and politics – as well as task conflict – relating to the work itself, the distribution of resources, procedures and policies, judgments and interpretation of facts, and how the group is functioning (De Dreu & Weingart, 2003; Jehn & Greer, 2013). Both of these types of conflict can create an unpleasant atmosphere and reduce levels of employee satisfaction. Further, some scholars suggest that these demographic differences may also lead to greater difficulties in coordination and to process losses, which might in turn affect peoples’ ability to perform when in mixed-gender environments (Joshi & Roh, 2009, 2013). Together, these mechanisms suggest that while diverse work settings may under some circumstances have positive effects, they also tend to create more challenging work environments for both incumbents and organizations. Such situations may lead to mixed mobility outcomes: increases in promotions, moves, and exits. These mechanisms also lead to predictions of higher job dissolution rates.

The literature on workgroup diversity has two key differences from the gendered work literature. The first is that, in contrast to the gendered work literature, which predicts the strongest effects for the most feminized jobs, diversity research suggest that because gender-diverse jobs
present distinct challenges and opportunities, mixed-gender rather than the most feminized jobs would have the strongest effects.

A second key difference in the diversity literature is its focus on the day-to-day experiences of workers. Thus, in contrast to the gendering literature, which emphasizes the societal-level gendering of work and the characteristics of jobs typically held by women, the diversity literature focuses on the gender composition of a specific job within a specific firm. The emphasis on within-firm gender composition predicts that the effects of mixed-gender jobs on incumbent mobility and job dissolution should persist even after accounting for job location and industry-level gender composition.

Thus, both the gendering of work and diversity literatures point to “common cause” mechanisms. The gendering of work highlights the lower status and devaluing of jobs held by women. Such factors would both increase turnover in the job and increase its likelihood of dissolution. The diversity literature, meanwhile, predicts that mixed-gender jobs may have more negative atmospheres and have higher levels of conflict among incumbents. This negative atmosphere may both cause turnover as the incumbents seek to escape the situation or companies seek to remove problematic players, and the job itself may gain a bad reputation or may be dissolved in its current form and reshaped in an effort to address the conflict.

This “common cause” pathway does not directly challenge previous research that has focused primarily on the link between job gender composition and individual incumbent outcomes. Instead, it brings job dissolution into the picture as an additional outcome to consider, highlighting the fact that gender composition has effects not only on the experiences of the incumbents through different mobility patterns, but also has organizational and structural consequences. Job dissolution has costs to the organization and its effects ripple throughout the job structure, affecting both the organization’s ability to perform as well as the opportunity structure of those in adjacent jobs. Thus, the impact of job gender composition on job dissolution, even if solely due to a common cause, is a worthwhile relationship to study. Incumbent mobility and job dissolution, however, are unlikely to be independent outcomes. In the following sections, we consider the interplay between these two outcomes, which complicates our predicted relationships.
Pathway B: Mobility Causes Dissolution

The higher rates of turnover predicted from gender composition presents an additional problem for organizations beyond those outlined above. Constantly filling a new position is costly and the organization may decide that keeping a job with high turnover is not worth the cost. In addition, the vacancies created by turnover increase the opportunities to discontinue the job, since it is much easier to decide not to fill a vacant position than dismantle a position with incumbents. We would therefore expect that this high turnover would contribute to a greater likelihood of these jobs being dissolved.

Both the gendered work and diverse workplace literatures predict that gender composition will be associated with higher rates of turnover. Thus this turnover itself may increase the likelihood of job dissolution beyond any factors that are a common cause of the two outcomes. In this case, job dissolution becomes a second-order effect, with dissolution rates amplified beyond what would be expected due to a common cause.

Pathway C: Dissolution Causes Mobility

At the same time, job dissolution may also cause mobility. Simply put, if a non-vacant job is dissolved, the incumbents will be forced to either move to different jobs within the organization or exit from the organizational altogether. This final pathway raises important causal challenges to our previous predicted relationships. As discussed earlier, much of the literature on the effects of gender composition and diversity assumes fixed job structures. When we acknowledge that jobs can be dissolved, we also need to recognize that this dissolution can itself be a cause of mobility. If this occurs, studies of mobility that do not acknowledge job dissolution will come to misleading conclusions. What appears to be gender composition affecting mobility could in fact be gender composition leading to job dissolution, which creates mobility as a secondary effect. In our study, such a situation would be particularly problematic if gender composition has an initial effect only on job dissolution (i.e. not a common cause), with mobility outcomes solely as a secondary effect.

Summary

In summary, our study provides three novel contributions. First, we simultaneously test predictions from both the gendered work and workplace diversity literatures that predict relationships
between job gender composition and incumbent mobility. Our ability to measure gender composition at both the industry level and within firms allows us to discern between mechanisms that are often confounded in studies that either examine a single organization (thus lacking industry-level measures) or use data on across individuals or occupations (thus lacking firm-specific measures). Second, we introduce job dissolution as an outcome worthy of study, one with consequences for firms and workers alike. Finally, we identify an important interplay between incumbent mobility and job dissolution, and assess the extent to which this interplay may result in misleading conclusions in studies that fail to take these relationships into account.

Additional Complexities

Our predictions so far have not addressed a number of additional subtleties such as the question of whether job gender composition has differential effects for women versus men, and whether the recent history of a job affects its outcomes. We will address a number of these questions in the supplemental analyses after establishing the main effects.

Data

We examined these relationships using data on key personnel in a sample of advertising agencies headquartered in the greater New York City area between 1986 and 1998. This industry and time period have many strengths for investigating the relationship between job gender composition, job mobility, and job dissolution. First, advertising is a complex professional service (Mills & Marglies, 1980) in which employees tend to have highly differentiated functional and hierarchical roles (Ibarra, 1992; Pattis, 1996) and is a context in which employee movement and work structure have significant firm consequences. Advertising agencies’ key strategic assets are embodied in human and social capital rather than in physical assets or production processes (Coff, 1997; Coleman, 1988; Sharma, 1997). In addition, the gender dynamics in this industry support the study of gender job composition. Over the course of our observation period, the proportion of women in these jobs increased from 32 to 36 percent. Indeed, our time window represents a period with particularly rapid advances in women’s employment outcomes throughout the United States workforce, with progress stalling in more recent years (Cohen, Huffman, & Knauer, 2009). Presumably, therefore, this transition period represents a time with a higher likelihood of mixed-gender jobs.
We obtained annual data on advertising agencies for this period from the January/February issue of The Standard Directory of Advertising Agencies (hereafter called Agency Red Book), the most comprehensive source of information on United States advertising agencies. The publisher, National Register Publishing, compiles the information from published sources and direct contact with the agencies. They maintain the accuracy and integrity of the Agency Red Book content through multiple means including a dedicated team that contacts each agency annually to get direct feedback on the accuracy of their data. The Agency Red Book contains data on all firms that are agencies of record for at least one national or multi state advertiser that spends $200,000 or more on media per year. It provides organizational and financial data, the client rosters for agencies, and, most importantly for this study, the names of agencies’ key personnel and their job titles.

The nature and detail of our data provide unique advantages that are surprisingly hard to find through alternative means. In particular, our data has two critical features. The first is that our data source provides information reported consistently over time by employers. Thus, the data reflect how the employers have structured their positions and provide complete data on all individuals in these positions, clearly indicating employees who share the same job titles. One might think that the proliferation of “big data sources” on individuals such as LinkedIn would provide easy alternatives, however such sources would be inadequate for two reasons. First, self-selection into creating a profile on LinkedIn would result in individuals and their positions missing from the data, leading to uncertainty in both the composition of the job and its fate. In addition, profiles on LinkedIn reflect each individual’s choice of language to describe their position, making it difficult to determine who actually shares the same title. Even the digitization of data has created surprising hurdles for accessing such data. We contacted the current publishers of the Agency Red Book, which is now provided as an online database, to explore the possibility of obtaining a more recent data sample. We discovered, however, that the company does not maintain digital archives of key historical information about agency characteristics that were necessary to perform the analysis.

The second critical feature of our data is that it includes information on many agencies within the same industry. Previous studies of mobility and inequality have typically either examined outcomes using a population sample, thus missing the dynamics occurring within a firm (Baron &
Bielby, 1980), or have examined data from a single firm, thus unable to distinguish aggregate
dynamics occurring simultaneously across the industry from the dynamics occurring within the firm
(Hasan et al., 2015; Miner, 1991). Having data on multiple agencies within the industry allows us to
parse apart these effects, most importantly allowing us to differentiate between the forces connected
with the gendering of work at the industry and societal level from the local effects of the gender
composition of a specific job in a particular firm.

The sampling frame included all agencies with New York City headquarters listed in the 1986
edition of the Agency Red Book with gross billings of $3.5 million or more for which the names of
key personnel and the agencies’ clients were available. We excluded “house” agencies, proprietary
advertising agencies established by client firms. Because mortality rates of advertising agencies are
high, to avoid survivor bias we split the sampling frame into subsets of agencies that survived and
those that dissolved prior to 1998. We purposively randomly sampled from each subset resulting in a
preliminary sample of 176 agencies, including 23 agencies with New York headquarters but located in
other cities; 96 agencies survived the entire observation period and 80 agencies failed prior to 1998.

For the purposes of this analysis, we dropped seven agencies because 75 percent or more of
their records reported only first initials in names, making it difficult to assess gender, and we dropped
a small number of individuals for whom we were unable to determine gender (see details below). We
also excluded observations where there were fewer than three key personnel listed in the agency in
positions other than the focal position (0.7 percent of job-years), as well as positions with extremely
generic titles such as “VP” (3 percent of job-years). Finally, we used the 1986 to 1988 observations
solely to create a measure of job age for the event history models and excluded the final year that each
agency is observed because all jobs are dissolved in the final year but due to agency failure rather than
reasons specific to the job. The final sample size is 13,956 job-year observations and 20,856
individual-year records in 151 agencies. The exclusions in some cases eliminated all observations for
an agency, leading to the final count of 151 agencies.

For each agency, we coded the job titles and names of every individual listed in the directory
as well as the characteristics of each agency annually. Previous research suggests that job titles
provide reasonable proxies for jobs in organizations (e.g., Baron & Bielby, 1986; Baron, Hannan, &
Burton, 1999; Miner, 1987; 1991) and that differences in job titles correspond to actual differences in job tasks (e.g., Robbins, 2002). The job titles reported in the Agency Red Book were generally not inventive or unusual, but rather quite explicitly descriptive of the tasks involved. Even if the titles were overly-specific, for instance two people doing similar work who have different titles, this would be a situation we would want to preserve. We are studying those cases where men and women share the same title. Even if a job is “dissolved” in name only, with each individual given a unique title but the tasks unaltered, it is worth noting if this type of dissolution is correlated with job gender composition. Appendix C in the online supplement provides examples of titles and a detailed description of how we coded them.

Measures

Dependent variables

We focus on two dependent variables: incumbent mobility and job dissolution.

**Incumbent mobility.** We categorized the fate of job incumbents into four categories: remained, promoted, exited, moved. We coded remain if an individual in a given year (time \( t \)) held the same title the following year (\( t+1 \)). We coded promotions by examining each move and coding whether the change in position constituted a move to a higher-level position. Exits occur when an individual is not included in the personnel listing of the agency in the following year. Note that we do not include observations where the agency itself exits the sample, so incumbent exits solely occur when the agency persists but the individual is no longer there. Finally, moves involve changes in jobs that are not promotions.\(^2\) Within our sample of 20,856 person-year observations, 63.6 percent remained, 7.5 involved a promotion, 22.6 exits, and 6.2 moves.

**Job dissolution.** We created an indicator variable for dissolved set equal to 1 if a title that appeared in one year (\( t \)) in an agency did not appear the following year (\( t+1 \)), and set equal to zero otherwise (the job persisted). Jobs that reappeared in the following year (\( t+2 \)) were also counted as persisting. Within our 13,956 job-year observations, 24.4 percent of observations were dissolved.

\(^2\) The move category includes a small number of observations originally coded as demotions. The demotions were too small of a group, however, (only 86 person-years) on which to run maximum likelihood models.
**Key Independent Variable: Mixed-gender Jobs**

Our key independent variable is a measure of mixed-gender jobs. To create this measure, we first had to code the gender of the job incumbents and then create a variable indicating the gender composition of the job.

**Coding gender.** We coded the gender of agency key personnel using first names. Three individuals, including the third author, independently coded the gender. Any discrepancies were resolved by agreement between the first and second coders. Of the 6,318 individuals in our initial dataset, 3,595 were coded as male and 2,121 as female. An additional 602 were coded as ambiguous due to gender-ambiguous names (e.g., Pat) or only initials appearing in the Agency Red Book. For these names, we conducted internet searches to find press releases, newspaper articles, LinkedIn profiles, etc. with references to the specific individual. We were able to determine the gender of 316 people this way. Among the remaining individuals, 258 had gender-ambiguous first names. For these individuals, we followed previous research (Cohen, Broschak, & Haveman, 1998; Gorman & Kmec, 2009) and coded their gender on the basis of whether the name was more frequently given to girls or boys according to the U.S. Census. Finally, we dropped a remaining 28 individuals with only first initials from the sample. The final sample has 3,832 men (61 percent) and 2,458 women (39 percent).³

**Identifying mixed-gender jobs.** A large proportion of jobs in our sample are in fact not mixed gender. This pattern is largely the result of the small numbers of incumbents in a given job. The majority of jobs in our data have only one or two incumbents, reflecting the reality of the top-level jobs reported in our data; each agency typically has only one CEO, one HR director, etc. Jobs with only one incumbent by definition cannot be mixed gender. A job with two incumbents, meanwhile, has only a 50 percent chance of being mixed gender even if filled randomly from a pool of 50 percent men and 50 percent women. We ran a simple simulation (available on request) that showed that these small job sizes account for much but not all of the low number of mixed-gender jobs in our sample.

³ Women account for 39 percent of all individuals in the data but only 34 percent of all person/year observations because women are on average in the data for shorter periods of time, resulting in fewer person/years.
While mixed-gender jobs in top management are therefore relatively rare, this situation also makes it a valuable subject to study for two reasons. First, this nature of the data makes it easier to separate the effects of firm-level mixed-gender from the effects of industry-level occupational gendering. Even if a job tends to be held by both men and women overall, i.e. it is mixed-gender at the industry level, in many agencies the job will be single-gender due to the small number of incumbents. Thus the gender composition of the incumbents of a specific job in an agency is not highly correlated with the overall gendering of a job across the industry, allowing us to separate the effects of these two forces. Second, mixed-gender jobs offer opportunities to break down gender divisions at work and so the consequences of being in these jobs is important to study and the rarity of these jobs speaks to the difficulty of integrating work.

The small number of mixed-gender jobs, however, does pose a challenge for the analysis. We initially coded several levels of mixed-gender in jobs, differentiating jobs that were evenly split by gender from jobs that had majority male or female incumbents. However, dividing this already small group primarily resulted in estimation convergence issues and large standard errors. At the same time, this more detailed analysis indicated that, while there were interesting subtleties, the estimated effects for these different levels of mixed-gender jobs were generally in the same direction, suggesting that the state of a job being mixed gender had an effect that held across the different levels of gender composition. We therefore decided to create a simplified measure that divides the jobs into just three categories: all male (49 percent of person-years), mixed gender (29 percent), and all female (21 percent). We later discuss some preliminary findings using more detailed categories.

Control Variables

We focus here on describing the different types of control variables and why they were included. Table 1 provides a detailed list of the control variables and how they are constructed. Appendix A in the online supplement provides means and standard deviations for these variables separately for incumbents of male, mixed-gender, and female jobs.

Insert Table 1 about here
Key Control Variables

Three control variables are key in testing the gendering of work hypotheses. These variables capture the effects of the types of jobs that women tend to hold by accounting for the industry-level gender composition of the job and its location vertically and horizontally within the firm.

Industry gender composition. The industry gender composition variables capture the extent to which a job is consistently held by men or women across agencies within our data. We created an industry-level gender composition measure by examining the gender of individuals who hold the same title outside of the focal agency in a three-year window, calculating the proportion of these individuals who are female. In cases where few held exactly the same job, we used information about the job components, level, and function to create a value for this variable (see Appendix D in the online supplement for details). We include the square of this value to account for the possibility that mixed-gender jobs have a different effect than highly female jobs. We also conducted analyses with categories of industry gender composition to allow for nonparametric effects and the results were unchanged.

Job level (vertical location). To measure job level, we created mutually-exclusive indicators for 5 levels in management: top management team which included all C-suite jobs, board members, and presidents; upper management which included senior vice president, executive vice president, partner, and top management of a subsidiary; management which included vice president and upper management of a subsidiary; and lower management which included director, manager, supervisor, associate vice president, and vice president of a subsidiary. The baseline is staff jobs.

Function (horizontal location). To capture job function, we created a series of indicators for eight functions set to one if the job contained that function and zero otherwise. Note that these categories are not mutually exclusive, individuals with complex job titles could be coded in multiple functional areas. The eight functions were accounts, administration, direction (e.g. CEO, president, managing director), creative, media, production, research and other. We also created a separate cross functional indicator to account for the possibility that positions involving more than one function might have unique features.
Additional Control Variables

**Incumbent tenure.** At the individual level, we would expect that an incumbent’s length of tenure, both within the agency and within the position, would influence their likelihood of mobility. We therefore include controls for number of years in the agency and number of years in the job. For individuals already employed in 1986, we examined up to 10 years of earlier records in the Agency Red Books to determine their tenures in 1986.

At the job level, previous research has found that when positions are held by incumbents with long tenures, these jobs are more likely to be dissolved, perhaps because such individuals have more power that they can use to protect their positions (Miner, 1991). In the job dissolution analysis, therefore, we control for the average years of tenure in the agency and in the job across the incumbents.

**Job characteristics.** We include a number of variables capturing the job’s prevalence both within the organization (number of incumbents) and the industry (number of other agencies with the same job). We also included indicator variables for unusual jobs when fewer than five other people across the industry shared the same title, both unusual component, some component of the job title is rare, and unusual combination for rare combinations of common components (see the online supplement for more details).

We include controls for job age. Previous evidence suggests that older jobs are more likely to persist, and such jobs may also have more stable mobility patterns for incumbents (Hasan et al., 2015; Miner, 1991). However, we do not know the age of the jobs present in 1986, the first year of our data. We wanted to include such jobs in our analysis (previous studies have examined only newly created jobs), and so we excluded from the regression analyses the first three years of data (1986-1988) in order to create indicator measures of job age: one year old jobs, two year old jobs, three year old jobs and jobs older than three years. We tested and found that three years is sufficient and that job age is not a major factor after three years.

**Organizational characteristics.** Because the health of the organization may account for job dissolution as well as incumbent mobility, we controlled for numerous organizational characteristics including size (measured by sales), sales performance change, agency age, whether an agency
changed name or location, whether the agency had multiple locations, and whether the agency was located outside of New York City. Finally, we controlled for the gender composition of all other top positions in the organization, reasoning that this would reflect efforts related to diversity practices or the feminization of the workplace which might influence job structures and mobility outcomes (Cohen & Broschak, 2013; Haveman et al., 2009).

Year. We include year dummy variables in our analysis to account for unobserved heterogeneity across years in our measures.

Method of Analysis

We use discrete event history models that are in effect logistic regression models that control for duration dependence. When time is measured in discrete intervals, years in this case, such models are more appropriate than methods such as Cox models, which are designed for continuous time (Allison, 1982; Jenkins, 2005; Petersen, 1991; Petersen & Koput, 1992). For the analysis of mobility, we use multinomial logistic models to predict the competing mobility outcomes, while for the job dissolution analysis we use a dichotomous logistic model. In both cases, the individuals or jobs appear in the data multiple times until an event occurs (individual mobility or job dissolution), and so we cluster the standard errors by individual or job to account for their multiple appearances in the data. In addition, our controls for job age and incumbent job tenure account for duration dependence, or the fact that the risk of an event happening is likely a function of how long a person or job has been at risk for an event. We provide average marginal effects in addition to the regression coefficients to aid in interpreting the results.

The key independent variable in these models is the job gender composition measure, which compares the effects of mixed-gender and all-female jobs to the baseline group of all-male jobs. In our analyses we run two models. In the first model, we include our basic control variables and estimate the overall relationship between job gender composition and the outcome. In the second model, we add controls for industry-level gender composition and job location (level and function). The interpretation of our key independent variable is therefore different in the two models. In Model 1, the job gender composition coefficient estimates the extent to which, after accounting for our basic controls, mixed-gender and all-female jobs are associated with different outcomes than all-male jobs.
Model 2 then adds the industry-level gender composition and location measures, which account for factors associated with the types of jobs that tend to be mixed-gender or all-female. This model controls for the effects of the gendering of work through industry- and society-wide forces, including influences such as gender discrimination and ideas regarding “women’s work” that lead women to end up in certain types of jobs. The change in effects between models 1 and 2, therefore, provides insights into the extent to which these industry- and society-wide forces play a role in the relationships that we find, testing key predictions from the gendered work literature. After the inclusion of these controls in Model 2, the coefficients for the job gender composition variable now measures whether, after accounting for the types of jobs that tend to be mixed-gender or all-female, the gender composition of the specific job within a specific firm matters. Since the workplace diversity literature emphasizes within-firm dynamics, the predicted effects from this literature are expected to persist even in Model 2.

Recent methodological research, however, has identified a problem with the use of nested models in logistic and other nonlinear probability models (Breen, Karlson, & Holm, 2013; Karlson, Holm, & Breen, 2012), including the two models we are using. The coefficients in probability models are affected by the distribution and scale of the residual errors, and therefore one cannot directly compare the coefficients of models with different error terms such as a model that adds a new control variable. To address this problem, we follow a clever solution proposed by Karlson, Breen and Holm (Breen et al., 2013; Kohler, Karlson, & Holm, 2011) and include in Model 1 residualized versions of the industry-level gender composition and location variables that will be added in Model 2. These residuals capture the additional explanatory power that the inclusion of these variables will have in the model, thus ensuring that the error terms of all models are identical and therefore the estimates can be directly compared across models. These residuals are orthogonal to the variables included in Model 1, however, and therefore do not have any impact on the coefficients estimated for these variables. In Model 2 the residualized variables are replaced by the full control variables, and one can then be confident that all changes in the coefficients between Model 1 and Model 2 can be attributed to the effect of these controls and not changes in the error terms.

A final methodological challenge is that it is difficult determine the exact nature and causal
direction of mobility and dissolution events. We hypothesized that mobility and job dissolution could be linked through a common cause (Pathway A), mobility could cause job dissolution (Pathway B), and job dissolution could cause mobility (Pathway C). One might try to use information about the reasons for leaving or the ordering of events to discern between these pathways. Unfortunately, our data does not provide this information. Even if we did have access to this information it may not be as accurate as we might like. In particular, individuals often quit in anticipation of a job dissolution or being fired, making it difficult to discern reasons for leaving and whether mobility or dissolution truly occurred first.

Our analysis takes a different approach that instead relies on the differential nature of these two outcomes. As discussed earlier, job dissolution is a summary and final event. It will also, by definition, be accompanied by mobility. Incumbent mobility, in contrast, is a more ongoing phenomenon and will only occasionally lead to job dissolution. Therefore, if job gender composition affects mobility either directly or through a common cause, then we should observe this relationship even in the years when the job itself persists.

We leverage this insight by conducting analyses where we separate incumbent mobility into a) job and incumbent remained, b) incumbent mobility while the job persisted, and c) incumbent mobility occurring in the same year as job dissolution. We estimate these analyses in a single multinomial model with the a) job and incumbent remaining as the baseline group and the remaining six categories (three types of mobility for both persisting and dissolved jobs) as the comparison outcomes. A particular focus in these models is on the estimates for mobility when the job persists, as these values allow us to test our hypotheses regarding the relationships between job gender composition and mobility while removing those observations where job dissolution might be a causal factor. In effect, these models allow us to do what other studies have implicitly assumed but not actually measured: it estimates the effect of job gender composition on mobility when the job itself is unchanged (persisting jobs).

Results

We begin by examining results when our two outcomes of incumbent mobility and job dissolution are considered separately. These results provide us with a baseline of findings, and we
briefly discuss the conclusions that might be drawn from such analyses. A key argument in the paper, however, is that such analyses may be problematic given the interplay between the two outcomes. Therefore, we will quickly turn to the model that examines mobility separately by job fate to explore this question.

**Incumbent Mobility and Job Dissolution Considered Separately**

*Mobility.* Table 2 provides the results when incumbent mobility is considered as the sole outcome. All models include the control variables listed in Table 1, the coefficients for these control variables are provided in Appendix B in the online supplement.

**Inert Table 2 about here**

Model 1 in Table 2 examines the relationship between job gender composition and incumbent mobility without controlling for industry-level gendering or job location (level and function). The first row of coefficients examines the mobility outcomes of employees in mixed-gender jobs in comparison with all-male jobs, while the second row of coefficients compare all-female jobs to the baseline all-male jobs. The two rows at the bottom of the table provide the average marginal effects calculated for these coefficients.

The results for Model 1 find positive and significant coefficients for promotions and exits for both mixed-gender and all-female jobs, telling us that employees in mixed-gender and all-female jobs experience higher promotion and exit rates than those in all-male jobs. The average marginal effect values provide us with a sense of the scale of these effects. They tell us that employees in mixed-gender jobs have promotion rates that are 2.7 percentage points (0.027 x 100) higher than those in all-male jobs and exit rates that are 3.8 percentage points higher. The values for all-female jobs are 0.6 percentage points and 5.1 percentage points for promotion and exits respectively.

Model 2 in Table 2 provides the results after controlling for the industry-level gender composition of the job and location of the job. We see that the addition of these controls eliminates the significant promotion and exit effects of all-female jobs. It also weakens the exit effects of mixed-gender jobs, but they remain statistically significant.

These results appear to fit several of our predictions. They suggest that incumbents in all-female and mixed-gender jobs have higher exit rates than all-male jobs. The exit coefficients are
substantially reduced by the industry-level gender and job location controls (Model 2), however, which tells us that much of these higher exit rates can be explained by the types of jobs that tend to be held by women or by mixed-gender. Further analysis (available upon request) revealed that the job level measure played a particularly strong role in the change between Model 1 and Model 2. In other words, female and mixed-gender jobs tend to be at lower levels, which tend to have higher exit rates. The job level measure also helps to explain the higher promotion rates in these jobs. Initially this appears to be counter-intuitive, but lower-level jobs have more rungs of positions above them and therefore higher promotion rates. The fact that a substantial portion of the effects are explained in Model 2 appears to fit with the gendered work predictions that these jobs, especially all-female jobs, are systematically different, which affects their mobility opportunities.

The mixed-gender jobs, however, continued to have significantly higher promotion and exit rates even after adding these controls. These findings appear to fit with the diversity literature, which predicts that within firms, mixed gender jobs offer both more opportunities and more challenges.

**Job dissolution.** Table 3 shows the results with job dissolution as the outcome variable. Here we find that, counter to our expectations, all-female jobs do not have significantly different dissolution rates than all-male jobs. Mixed-gender jobs, in contrast, show significantly higher likelihoods of dissolution, and this effect persists after controlling for industry-level gender and job level and function (Model 2). The average marginal effects show a dissolution rate that is 4.5 percentage points higher in Model 2. These results could fit with any of the three pathways discussed in our predictions. Pathway A, “common cause,” would suggest that the greater challenges and opportunities posed by mixed-gender jobs tend to lead to both higher turnover (as we show in Table 2) and the higher dissolution rates shown in Table 3. Pathway B, meanwhile, predicted that the higher turnover that we seem to have found for mixed-gender jobs in Table 2 could in turn be the cause of higher rates of job dissolution. However, given the possibility that dissolution can also cause turnover (Pathway C), we require further investigation.

Insert Table 3 about here
Mobility and Job Dissolution Considered Together

Table 4 presents the results when incumbent mobility is separated by the fate of the job, dividing mobility when the job persists from mobility that is accompanied by job dissolution. The results for Model 1 are not very different from the findings in Table 2. They show that, without controlling for industry-level gender or job location, the higher rates of promotion and exit for mixed-gender jobs occur both when the job persists and when it is dissolved. The all-female jobs show similar patterns except that the higher rate of promotions is only significant when the job persists.

Insert Table 4 about here

In Model 2, however, we see some striking results for mixed-gender jobs. The estimates show that much of the higher mobility that we found for mixed-gender jobs in Model 2 of Table 2 is actually occurring when the job is dissolved. Mixed-gender jobs show higher rates of all three types of mobility in years when the job is dissolved. When a job persists, in contrast, mixed-gender jobs have significantly higher promotion rates but they do not have significantly different exit or move rates compared to all-male jobs. These results pose a challenge to Pathways A and B, because these pathways predict higher turnover while the job persists. Instead, it seems that Pathway C is playing an important role: Job dissolution is a significant contributor to the higher mobility that we observed in mixed-gender jobs in Table 2. This finding is particularly puzzling because our literature review primarily suggested common cause mechanisms. The findings in Table 4, in contrast, suggest that mixed-gender jobs are affecting job dissolution directly in some way that has little effect on mobility.

The all-female jobs do not show the same pattern. Much of the higher mobility rates of these jobs in Model 1 are accounted for by the controls in Model 2. The exception is that all-female jobs continue to have higher exit rates when the job persists. This finding suggests that either all-female jobs pose challenges to the incumbents, leading them to leave or be fired, or that women who hold these positions are more likely to leave.

Further Analyses

Given the unexpected findings regarding mixed-gender jobs, we conducted several additional analyses to better understand the patterns we found and to confirm that our findings were robust.
Differential effects by gender

Our analysis so far has assumed that the effects of mixed-gender composition do not differ for women and men. However, several theoretical perspectives provide reasons to expect differences. Recent theorizing on the effects of conflict suggests that diversity may unevenly affect group members’ perceptions of conflict and behavioral responses to it (Jehn & Greer, 2013). Consistent with this, several theories from demography – similarity-attraction, social-contact, and social categorization – are built on arguments that demographic composition affects members of minority (in our case, women) and majority (in our case, men) groups differently (Cohen & Broschak, 2013; Tolbert, Graham, & Andrews, 1999; Tolbert et al., 1995; Williams & O'Reilly, 1998) and that men would be particularly threatened by mixed-gender job composition (Wharton & Baron, 1987).

Another mechanism that may lead to different effects for men and women in mixed-gender jobs relates to the so-called glass escalator (Williams, 1992). This term describes preferential treatment in hiring and promotion given to men who work in female-typed occupations, as these men face heightened pressure to move up in their organizations. While glass escalator theories focus on men in female gendered jobs, we might see similar effects for men sharing the same job title as women, even if the job itself is not distinctly gendered. The discomfort of this situation may lead to men making extra effort to outperform women sharing the same title leading to promotion, or to organizations giving preferential treatment to men in these situations to resolve the tension. Together, asymmetries in experience and glass escalator theories suggest that the effects of mixed-gender jobs on all types of mobility may be elevated for men versus women.

To test these ideas, we conducted additional analyses where we created separate indicator variables for men in mixed-gender jobs and women in mixed-gender jobs. This approach is essentially an interaction, but because incumbents in our all-male and all-female categories are by definition one gender we cannot create a full interaction between job composition and gender. Table 5 presents the results of the analysis. This table presents only Model 2, which includes the controls for industry gender composition, level, and function, focusing on the effects of mixed-gender jobs within firms. The first three columns show estimates of incumbent mobility overall. The baseline (omitted) group for these models is still all-male jobs, and the results show that both men and women in mixed-gender
jobs tended to have higher mobility rates than all-male jobs. There are some differences, with men in mixed-gender jobs experiencing somewhat higher promotion rates and women having higher rates of exits and lateral moves. However, we ran additional models and found that the differences were not statistically significant.

**Insert Table 5 about here**

The remaining columns in the table split mobility by job fate and point to more interesting patterns by gender. We found previously in Table 4 that incumbents in mixed-gender jobs that persist tend to have higher promotion rates. Table 5 reveals that this effect occurs primarily for men in mixed-gender jobs, who have a positive and significant effect (0.388). The coefficient for women in mixed-gender jobs is smaller and not significant. Furthermore, additional analyses confirm that the difference between the effects for men and women in mixed-gender jobs is statistically significant, as indicated by the tilde (~) in the table. Women in mixed-gender jobs, in contrast, appear to have higher promotion rates when a job is dissolved, although the difference between men and women is not statistically significant. These results highlight once again the important of considering mobility separately for jobs that persist and dissolved jobs. While it initially appeared that men and women in mixed-gender jobs experienced similar mobility patterns, our analysis by job fate revealed important differences in the nature of the higher promotion rates associated with these jobs. When jobs persist, only men in mixed-gender jobs experience significantly higher promotion rates, a pattern that fits with the glass escalator theory.

**Breaking gender stereotypes?**

Our focus has been on mixed-gender jobs, men and women sharing the same title. In this male-dominated industry, though, we also have a number of cases of women holding positions mostly held by men in the rest of the industry, women in male-typed jobs, as measured by the industry-level gender composition. These women are not necessarily in mixed-gender jobs because here we are measuring male-dominated jobs at the industry level, while within the firm it could be held by one or

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4 We also looked at men in female jobs. The results found significantly lower lateral move rates for men in female-dominated jobs that persisted. Since this is a male-dominated industry, however, this group was very small we are not confident that the results are reliable.
more woman and thus would be all-female within the firm. This pattern is particularly likely given the large number of jobs with a single incumbent. Since women holding male-typed jobs represents a form of gender integration that might share some similarities to men and women sharing the same job title, we wished to examine whether these individuals experienced similar mobility patterns to those in mixed-gender jobs. This analysis also addresses a related question: are higher promotion rates in mixed-gender jobs an effect of who is chosen to fill such jobs and not of the mixed-gender composition itself? Perhaps agencies only select highly qualified individuals to fill mixed-gender jobs because they are unusual situations and therefore risky, and then these highly-qualified individuals are quickly promoted. If this were the case, then one would expect to see a similar selection pattern for women in male jobs, who would also face a risky situation going against traditional gender norms.

We analyzed this question by including in our analysis an indicator variable for women who were in male-typed occupations, defining a male-typed occupation as a position that is 80 percent or more male in the rest of the industry at that time period. The results, available upon request, found no significant effects for women in male occupations. These results, therefore, indicate that the effects of the mixed-gender jobs are different from those of situations where women hold traditionally male jobs and that women holding traditionally male jobs are not driving our mixed-gender results. The findings also suggest that selection effects are unlikely.

**Does the type of the mixed-gender job matter?**

Our analysis has examined mixed-gender jobs as an undifferentiated group, a decision mostly driven by data restrictions. We did attempt quite a few analyses that divided mixed-gender jobs into different types, but the number of mixed-gender jobs is limited in the data and so dividing them into smaller groups stretches our sample quite thin. We therefore chose not to include these results in our main findings. Two sets of analyses, though, address key questions and suggest further insights. We therefore briefly discuss these results, with the warning that the smaller sample sizes mean that the findings should be viewed as preliminary. Details of these analyses are available upon request.

First, we wanted to examine whether the specific gender composition of a mixed-gender job matters. We therefore divided our broad category of mixed-gender jobs into three groups: male majority (greater than zero and less than 45 percent female), balanced (45 to 55 percent female), and
female majority (greater than 55 percent and less than 100 percent). Half of the mixed-gender jobs in our sample are male majority, 21 percent are balanced, and 29 female majority. We also included in this model the all-male and all-female categories. The most striking pattern appears in the mobility results separated by the gender of the incumbent, which show that while the promotion-with-job-persistence rates for men are higher for all three types of mixed-gender jobs compared to all-male jobs, the size of this effect increases with the proportion of women in the job, with the highest promotion-with-persistence rates for men in female-majority mixed-gender jobs. These female-majority jobs also appear to have higher exit-with-job-persistence rates for both men and women. We did not observe a similar trend for the higher promotion-with-job-dissolution rates among women, which appeared to be higher in all three types of mixed-gender jobs. The pattern for men may fit the glass escalator theory: when a man shares a job with several women, this might create dissonance that leads to either moving the man up and out of the position or creating conflict and exits. Interestingly, though, this situation does not seem to lead to higher levels of job dissolution. In terms of job dissolution, the balanced jobs have the highest dissolution rate, indicating that jobs with a true mix of men and women are most likely to be dissolved.

In our second analysis, we examined the recent history of the job’s gender composition. One might imagine that mixed-gender jobs are often positions that are recently diversified or newly created. Perhaps the effects of the mixed-gender positions, therefore, are less about their static state of being mixed-gender and more about their recent transition to mixed-gender. For instance, as male-dominated jobs lose status and are less desirable they might become more open to women (Reskin & Roos, 1990). Greater presence of women, therefore, may be a sign that a job is becoming obsolete (Cohen et al., 2009; Jacobs, 1992), which might explain their higher dissolution rates. Such a pattern should be captured by our industry-level gender composition controls, since they should capture the effects of characteristics that are correlated with being mixed-gender across the industry. We conducted additional analyses, though, to ensure that such effects were not driving our findings. For this analysis, we divided the mixed-gender jobs into four possible types: jobs that had been mixed-gender for at least two years, those that were recently created and therefore had no past history, those that recently transitioned from all male jobs, and those that recently transitioned from all female. Our
analysis revealed several important points. First, half of the mixed-gender jobs in our sample are not new or newly transitioned, but have been mixed gender for at least two years. The all-male and all-female jobs are much more likely to be new, although much of this has to do with the fact that these jobs include of a lot of single-incumbent positions, which are more likely to be new jobs. Second, counter to our expectations, new and newly-transitioned mixed-gender jobs did not have higher dissolution rates. The mixed-gender jobs that had the lowest dissolution rates were jobs that had recently transitioned from being all-male, going against the prediction that a shift from all-male to mixed composition might signal declining status. Jobs that had been mixed-gender for two years, new mixed-gender jobs, and mixed-gender jobs transitioning from all-female had similarly low persistence rates. Finally, paralleling our finding in the previous analysis, men had the highest promotion-with-job-persistence rate in positions that had recently transitioned from all-female.

Robustness checks

In the interest of space, we provide only a brief description of our robustness checks and their findings. Detailed tables of these analyses are available upon request.

Singletons. The coefficients for our control variables indicated that jobs with a single incumbent tend to have different outcomes than multi-incumbent positions. While our regression models control for this effect, we want to assure ourselves that our results were not driven by the fact that mixed-gender jobs cannot be single-incumbent jobs. We therefore replicated our analysis examining only jobs with two or more incumbents.

Jobs with many incumbents. Similarly, a small number of the mixed-gender jobs were quite large and we were concerned that these positions might have undue influence on the results. We therefore reran the analyses excluding any jobs with more than four incumbents.

Large companies. Finally, we ran the analysis excluding the six largest companies, which accounted for almost 25 percent of person-year observations.

We found similar results in all of these analyses; details are available upon request.

Discussion

We began this paper by arguing that ignoring job dissolution is a problematic omission from attempts to understand the effects of gender composition on mobility. Failing to fully account for the
inter-relationships between gender composition, job mobility, and job dissolution in our theories of these phenomenon can lead to misinterpretations of the effects of any one of them on the others. To better understand these dynamics, we examined the effects of gender composition on the fates of both job incumbents and the jobs themselves in New York City advertising agencies.

When the two outcomes – incumbent mobility and job dissolution – are considered separately, our results appear to align with the common cause mechanisms identified from previous theory and research. Mixed-gender and all-female jobs have higher promotion and exit rates compared to all-male jobs. Much of this effect is accounted for by industry-level gender composition and job location, especially for all-female jobs. This pattern is in line with the gendered-work literature that focuses on forces that push women toward certain jobs and exclude them from others and results in women holding similar types jobs across firms. However, higher promotion and exit rates persist for mixed-gender jobs after adding these controls, supporting the prediction from the diversity literature that within-firm gender composition would play a role for mixed-gender positions.

We also find that mixed-gender jobs have higher dissolution rates, and these higher dissolution rates pose a challenge for analyses of incumbent mobility because the decision to dissolve a job can be both the cause and consequence of mobility. We addressed this problem by examining mobility separately for jobs that persisted and those that were dissolved. This analysis reveals patterns inconsistent with previous literature that we would have missed if we only considered the outcomes of mobility and job fate separately.

Our initial expectation was that the higher dissolution rates of mixed-gender jobs were either due to the same factors that caused higher mobility (common causes) or a secondary effect of the mobility itself. Our analysis combining the mobility and job dissolution outcomes, however, alters the picture. We find that, beyond an effect on promotion that primarily goes to the men, working in mixed-gender jobs appears to have little net effect on mobility when jobs persist. Instead, most of the higher mobility of mixed gender jobs occurs in the year that the job dissolved.

This striking finding challenges current theories on diversity in two ways. First, it points to the importance of considering the dynamic nature of job structures when studying the effects of diversity in the workplace. Indeed, our results suggest that previous demography studies linking
diversity and turnover may be misleading because they do not discern between turnover caused by conditions within the job versus turnover linked to structural changes in the organizations.

This finding has further implications for the diversity literature because our full results do not align well with current theories about how diversity in the workplace affects individual and organizational outcomes. What is particularly puzzling in our findings is that organizations are dissolving mixed-gender jobs at a higher rate, indicating that organizations see some aspects of these jobs as problematic or less valuable. In other words, the results indicate that, at least at the organization level, the negative aspects of mixed-gender jobs outweigh the positive. However, current theories about both the positive and negative effects of diversity focus on the impact of diversity on the work atmosphere and performance of the incumbents. These mechanisms should have influenced the mobility outcomes of incumbents even when jobs persist. If, for instance, mixed-gender jobs increase tensions and make coordination of work more difficult, this should result in greater numbers of exits and moves among incumbents, either initiated by the incumbents themselves or by organizational decision-makers trying to address the issues. Given that discontinuing a job is a relatively extreme option, we would expect to see, at least in some agencies, some level of higher turnover with job persistence in the years before an organization resorts to dismantling the job. Despite evidence of a negative view of mixed-gender jobs at the organization level, however, we do not see such evidence of negative effects of mixed-gender on incumbents in jobs that persist.

Current theory, therefore, does not appear to offer mechanisms that would easily fit these results and points to the need to consider factors that influence organizational decision-making on diverse jobs independently of the incumbent experience (shown as Drivers of Dissolution in Figure 1). One possibility is that there are factors that organizations consider when making decisions about job dissolution that are beyond the factors influencing the incumbent experience, and that mixed-gender jobs are somehow correlated with one of these elements. Another possibility is that the mixed-gender nature of the job somehow influences the decision-making process of the organization. For instance, perhaps organizations view and evaluate these jobs differently. If problems do arise within mixed-gender jobs, perhaps organizations are more likely to attribute these problems to the nature the job rather than as stemming from the specific incumbents in the job. Such a situation could result in
organizations jumping to the conclusion that restructuring is necessary for mixed-gender jobs more often even when the level of problems that these jobs create are not in fact different from other jobs. While our study does not allow us to discern between these possibilities, our results point to the importance of further theorizing about and studies of organization-level decision-making processes and how mixed-gender jobs might have effects at this level that go beyond the experiences of the job incumbents.

Our data and analysis are subject to several limitations. Our sample size did not allow us to undertake as nuanced an analysis as we would have liked, and so future studies would benefit from a considerably larger sample size to compensate for the rarity of these jobs. In addition, we do not have in our data direct measures of conflict or performance. Instead, we rely on the mobility outcomes as proxies. The richness of the data in other respects, however, especially providing information on many organizations and jobs within an industry, allows us to take new approaches to testing our key questions. We view our analysis as a complement to other research that more closely examines the dynamics within jobs but often at the cost of less breadth of data. Similarly, we do not have information on the causal order in situations where mobility and job dissolution both occur. While we are confident that dividing mobility by job fate provides us with leverage to address key aspects of this question, a more detailed examination of the dynamics of such situations would be valuable.

A final set of questions to consider centers on our setting. Are our findings specific to these key personnel? Are they specific to this industry, a professional service industry where job creation and dissolution are relatively common events, and this time period, when gender segregation was on the decline? Further research is needed to examine whether the patterns we observe also occur in different types of positions, time periods, forms of diversity, and industries. Regardless of whether future research finds exactly the same patterns for other jobs as we find here, our analysis points to the importance of considering the role, both empirically and theoretically, of organizational structural change in understanding the impacts of diversity in workplaces.

Our study also affirms the importance of continued and close attention to the effects of firm and work structure dynamics in explaining inequality (Barley & Kunda, 2001; Baron & Bielby, 1980). Women’s representation in the management ranks increased across a range of industries and
occupational categories in the 1970s and 1980s though it has since slowed (Cohen et al., 2009). Even the progress that has been made, though, while encouraging, may mask a lack of true integration of women into management. Management positions remain highly segregated by industry, with men still concentrated in higher-paying positions (Cohen et al., 2009). Furthermore, research on the workforce as a whole indicates that even when occupations and organizations appear to be gender-integrated, segregation persists at the job-level in organizations (Baron, Mittman, & Newman, 1991; Cohen & Broschak, 2013; Stainback & Tomaskovic-Devey, 2012). Within any given organization, there are fewer instances of men and women sharing the same title than the aggregate occupation- or organization-level data would suggest. To understand this phenomenon, it is crucial to look at dynamics within firms. In our case, by considering the dynamics within jobs that are mixed-gender at the firm level, we identified a fragility of these mixed-gender jobs that contributes to the persistence of segregation in jobs at the firm level, even for occupations that are integrated at the industry level. While this is only a step, it is an important step toward explaining the combined dynamics of segregation, jobs, and mobility.
References


Figure 1. Possible pathways linking job gender composition, incumbent mobility, and job dissolution.

1The mechanisms that we identified in the literature were generally common cause mechanisms, but we allow here for the possibility that some mechanisms could solely affect mobility or solely affect dissolution.
Table 1. Control variables

<table>
<thead>
<tr>
<th>Key Control Variables</th>
<th>Description of variable construction</th>
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<td><strong>Industry-level gender composition</strong></td>
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</tr>
<tr>
<td>Proportion female</td>
<td>See appendix D. This value is standardized. Squared value also included.</td>
</tr>
<tr>
<td><strong>Unusual jobs</strong></td>
<td></td>
</tr>
<tr>
<td>Unusual component</td>
<td>For at least one component of the title, less than five others shared that component in a 3-year window.</td>
</tr>
<tr>
<td>Unusual combination</td>
<td>Components are not unusual but less than 5 others share this same combination in a 3-year window.</td>
</tr>
<tr>
<td><strong>Incumbent tenure</strong></td>
<td><em>These measures are averaged across incumbents for the job persistence analyses.</em></td>
</tr>
<tr>
<td>Tenure in company</td>
<td>Years working in agency, includes a 10-year lookback window before 1986. Squared value included.</td>
</tr>
<tr>
<td>Tenure in job</td>
<td>Years working in job, includes a 10-year lookback window before 1986. Squared value included.</td>
</tr>
<tr>
<td><strong>Job function</strong></td>
<td><em>Equal to 1 if the title includes a component in this function, NOT mutually exclusive.</em></td>
</tr>
<tr>
<td>Functional categories</td>
<td>Accounts, Admin, Direction (e.g. managing directors, presidents), Creative, Media, Production, Research, Other.</td>
</tr>
<tr>
<td>Cross-functional</td>
<td>Equal to 1 if the job is in more than one functional area.</td>
</tr>
<tr>
<td><strong>Job level</strong></td>
<td><em>Mutually exclusive dummy variables for five levels, the reference category is staff.</em></td>
</tr>
<tr>
<td>Lower management</td>
<td>Director, manager, supervisor, associate vice president, and vice president of a subsidiary.</td>
</tr>
<tr>
<td>Management</td>
<td>Vice president, partner and upper management of a subsidiary.</td>
</tr>
<tr>
<td>Upper management</td>
<td>Senior vice president, executive vice president, senior partner, and top management of a subsidiary.</td>
</tr>
<tr>
<td>Top management team</td>
<td>C-suite jobs, board members, and presidents.</td>
</tr>
<tr>
<td><strong>Additional Controls</strong></td>
<td></td>
</tr>
<tr>
<td>Number of incumbents</td>
<td><em>Both indicator and dummy variables to capture as much variation as possible tied to size of the job.</em></td>
</tr>
<tr>
<td>Indicator variables</td>
<td>Dummy variables for jobs with one, two, or three incumbents, the most common sizes.</td>
</tr>
<tr>
<td>#Incumbents</td>
<td>A continuous measure of job size to capture effects above three. Squared value included.</td>
</tr>
<tr>
<td>Industry prevalence</td>
<td></td>
</tr>
<tr>
<td># Companies w/ same title</td>
<td>Number of companies that have the same title. Squared value included.</td>
</tr>
<tr>
<td><strong>Job age</strong></td>
<td></td>
</tr>
<tr>
<td>Indicator variables</td>
<td>Dummy variables for jobs that are one, two, and three years old. Reference group is four or more.</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Resurrected</td>
<td>Equal to one if the job was previously discontinued in the agency and then returned.</td>
</tr>
<tr>
<td><strong>Organizational characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>log(sales)</td>
<td>Natural log of agency sales in focal year, adjusted for inflation.</td>
</tr>
<tr>
<td>sales missing</td>
<td>Equal to 1 if sales was missing and value above was imputed from other years.</td>
</tr>
<tr>
<td>Change in sales</td>
<td>No change (-3% to 3%) is the reference category. The other categories are: &gt;50% decline, 10-50% decline, 3-10% increase, 10-25% increase, 25-100% increase, &gt;100% increase, and sales change missing. Values selected after examining the distribution the data. Allows for a nonlinear relationship between sales change and our outcomes.</td>
</tr>
<tr>
<td>Agency age</td>
<td>Number of years since founding. Squared value included.</td>
</tr>
<tr>
<td>Agency name change</td>
<td>Equal to 1 if the agency changed its name in the focal year.</td>
</tr>
<tr>
<td>Agency location change</td>
<td>Equal to 1 if the agency changed its location in the focal year.</td>
</tr>
<tr>
<td>Multiple locations</td>
<td>Equal to 1 if the agency has multiple locations.</td>
</tr>
<tr>
<td>Outside NYC</td>
<td>Equal to 1 if the agency is located outside of New York City.</td>
</tr>
<tr>
<td>Percent management female</td>
<td>% of incumbents in all other positions listed in the agency for that year who are female. Squared value included.</td>
</tr>
<tr>
<td><strong>Year indicator variables</strong></td>
<td>Dummy variables for each year, with 1989 as the reference (1986-1988 excluded &amp; only used for job age).</td>
</tr>
</tbody>
</table>
Table 2. Multinomial logistic estimates of the relationship between job gender composition and incumbent mobility.

<table>
<thead>
<tr>
<th>Job gender composition (omitted group is all-male)</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed-gender jobs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotion</td>
<td>0.479***</td>
<td>0.298**</td>
</tr>
<tr>
<td>Exit</td>
<td>0.303***</td>
<td>0.140*</td>
</tr>
<tr>
<td>Move</td>
<td>0.134</td>
<td>0.199</td>
</tr>
<tr>
<td>(0.102)</td>
<td>(0.102)</td>
<td>(0.061)</td>
</tr>
<tr>
<td>(0.060)</td>
<td>(0.079)</td>
<td>(0.105)</td>
</tr>
<tr>
<td>All-female jobs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotion</td>
<td>0.184*</td>
<td>-0.044</td>
</tr>
<tr>
<td>Exit</td>
<td>0.321***</td>
<td>0.081</td>
</tr>
<tr>
<td>Move</td>
<td>-0.050</td>
<td>0.154</td>
</tr>
<tr>
<td>(0.074)</td>
<td>(0.047)</td>
<td>(0.079)</td>
</tr>
<tr>
<td>(0.078)</td>
<td>(0.050)</td>
<td>(0.080)</td>
</tr>
</tbody>
</table>

Controls included?

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic controls (see table 1)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Industry gender composition</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Level</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Function</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Average Marginal Effects

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed-gender jobs</td>
<td>0.027</td>
<td>0.015</td>
</tr>
<tr>
<td>All-female jobs</td>
<td>0.006</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>0.038</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>0.001</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>0.017</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>0.001</td>
<td>0.008</td>
</tr>
</tbody>
</table>

N 20830 20830

* p<0.05, ** p<0.01, *** p<0.001

Note: Appendix B lists all of the control variables and their coefficients. Standard errors in parentheses.
Table 3. Logistic estimates of the relationship between job gender composition and job dissolution

<table>
<thead>
<tr>
<th></th>
<th>Job Dissolution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Job gender composition (omitted group is all-male)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed-gender jobs</td>
<td>0.349**</td>
<td>0.253*</td>
</tr>
<tr>
<td></td>
<td>(0.120)</td>
<td>(0.121)</td>
</tr>
<tr>
<td>All-female jobs</td>
<td>0.061</td>
<td>-0.035</td>
</tr>
<tr>
<td></td>
<td>(0.045)</td>
<td>(0.049)</td>
</tr>
<tr>
<td>Controls included?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic controls (see table 1)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Industry gender composition</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Level</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Function</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Avg Marginal Effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed-gender jobs</td>
<td>0.063</td>
<td>0.045</td>
</tr>
<tr>
<td>All-female jobs</td>
<td>0.010</td>
<td>-0.006</td>
</tr>
<tr>
<td>N</td>
<td>13932</td>
<td>13932</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001

Note: Appendix B lists all of the control variables and their coefficients. Standard errors in parentheses.
Table 4. Multinomial logistic estimates of the relationship between job gender composition and incumbent mobility separated by job fate.

<table>
<thead>
<tr>
<th>Job gender composition (omitted group is all-male)</th>
<th>Job Persisted</th>
<th>Job Dissolved</th>
<th>Job Persisted</th>
<th>Job Dissolved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Promotion</td>
<td>Exit</td>
<td>Move</td>
<td>Promotion</td>
</tr>
<tr>
<td>Mixed-gender jobs</td>
<td>0.498***</td>
<td>0.243***</td>
<td>-0.050</td>
<td>0.546***</td>
</tr>
<tr>
<td></td>
<td>(0.136)</td>
<td>(0.071)</td>
<td>(0.152)</td>
<td>(0.158)</td>
</tr>
<tr>
<td>All-female jobs</td>
<td>0.541***</td>
<td>0.453***</td>
<td>0.127</td>
<td>0.055</td>
</tr>
<tr>
<td></td>
<td>(0.159)</td>
<td>(0.075)</td>
<td>(0.178)</td>
<td>(0.083)</td>
</tr>
</tbody>
</table>

Controls included?
- Basic controls (see table 1)
- Industry gender composition
- Level
- Function

Average Marginal Effects

<table>
<thead>
<tr>
<th></th>
<th>Job Persisted</th>
<th>Job Dissolved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Promotion</td>
<td>Exit</td>
</tr>
<tr>
<td>Mixed-gender jobs</td>
<td>0.011</td>
<td>0.012</td>
</tr>
<tr>
<td>All-female jobs</td>
<td>0.012</td>
<td>0.038</td>
</tr>
</tbody>
</table>

N = 20830

*p<0.05, **p<0.01, ***p<0.001

Note: Appendix B lists all of the control variables and their coefficients. Standard errors in parentheses.
Table 5. Multinomial logistic estimates of the effect of mixed-gender jobs separately for men and women on incumbent mobility overall and separated by job fate (Model 2 only).

<table>
<thead>
<tr>
<th>Job gender composition (omitted group is all-male)</th>
<th>Overall Mobility</th>
<th>Mobility by Job Fate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Promotion</td>
<td>Exit</td>
</tr>
<tr>
<td>Men in mixed-gender jobs</td>
<td>0.357**</td>
<td>0.127</td>
</tr>
<tr>
<td></td>
<td>(0.111)</td>
<td>(0.067)</td>
</tr>
<tr>
<td>Women in mixed-gender jobs</td>
<td>0.225*</td>
<td>0.156*</td>
</tr>
<tr>
<td></td>
<td>(0.114)</td>
<td>(0.070)</td>
</tr>
<tr>
<td>All-female jobs</td>
<td>-0.048</td>
<td>0.082</td>
</tr>
<tr>
<td></td>
<td>(0.079)</td>
<td>(0.050)</td>
</tr>
</tbody>
</table>

Controls included?
- Basic controls (see table 1) Yes
- Industry gender composition Yes
- Level Yes
- Function Yes

<table>
<thead>
<tr>
<th></th>
<th>Overall Mobility</th>
<th>Mobility by Job Fate</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>20830</td>
<td>20830</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001

~ Coefficient for women in mixed-gender jobs is significantly different from coefficient for men in mixed-gender jobs.

Note: Appendix B lists all of the control variables and their coefficients.
Standard errors in parentheses.