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Not just good for her: A temporal analysis of the dynamic relationship between representation of women and collective employee turnover

Cara C. Maurer
Western University, London, Canada

Israr Qureshi
Australian National University, Canberra, Australia

Abstract

Many organizations aim to increase the representation of women in their workforce, yet such efforts are often challenged by women's relatively higher propensity to leave a job compared to men. Overlooked so far has been the temporal relationship between the representation of women and an organization's collective employee turnover. We suggest that a substantive and rapid increase in the representation of women positively affects women and results in positive spillover effects for men, leading to a decrease in collective turnover. In our theoretical development, we explain how higher representation of women is associated with higher job embeddedness for all employees, which results in a subsequent decrease in collective employee turnover. We use latent curve model (LCM) analysis to examine a population of 499 organizations over a 14-year time span, and find support for our hypotheses. We suggest opportunities for future research and offer implications for practicing managers.

Keywords

collective employee turnover, job embeddedness, latent curve modeling, representation of women

Many organizations are setting public goals to include more women, with varying success in achieving desired outcomes. *The Times* 2018 Top 50 Employers for Women in the UK, for example, lists the following corporate goal statements: "Our diversity makes us stronger and more innovative, which is why our goal is to achieve a gender-balanced workforce by 2025." (Accenture); "Our history in gender diversity is on-going. We have initiatives to develop female talent, and an ambition to have gender parity across management roles by 2025" (Pepsico).[1] Organizations aim to increase representation of women in their workforce for institutional and strategic reasons, or a

Corresponding author:
Israr Qureshi, Research School of Management, Australian National University, LF Crisp Building 26C, Canberra, ACT, Australia.
Email: israr.qureshi@anu.edu.au

combination of the two (Konrad, Yang, & Maurer, 2016). Organizations gain from hiring and retaining a diverse workforce that includes more women, such as a better talent pool (e.g., McLeod, Lobel, & Cox, 1996), more variety of perspectives, higher creativity, and better problem solving (McLeod et al., 1996; Richard, Barnett, & Dwyer, 2004; Singh & Point, 2006).

It takes significant effort to increase the representation of women, including, for example, systematic hiring and visible representation of women at very senior organizational levels (Ng & Sears, 2017). Despite organizational efforts, the representation of women in organizations has been low historically (e.g., Kanter, 1977; Schwartz, 1989). One study, based on the 1982–1986 time period, reported that about 30 percent of managers in the United States were women at a time when women represented 44 percent of the labor force (Shenhav, 1992). Since then, progress has been made; however, some organizations continue to struggle to increase the representation of women in their workforce. Statistics Canada, for example, reported a slower growth rate in women's involvement in the labor force between 1990 and 2018, at only 0.3 percentage points per annum, compared to a rate of 1.4 percentage points per annum between 1953 and 1990.[2] Hence, representation of women in an organization or work unit is of importance to both research on diversity (Konrad, Kramer, & Erkut, 2008) and human resource management (HRM) (Kossek, Markel, & McHugh, 2003).

Part of the explanation for persistent lower representation of women despite organizational efforts is the challenge of retaining such talent (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). A meta-analysis of collective employee turnover demonstrated that turnover among women is generally higher compared to that of men (Hom, Roberson, & Ellis, 2008); however, the findings were mixed (see review by Hom et al., 2008), leaving room for a more nuanced explanation of underlying mechanisms. Clearly, collective employee turnover significantly impacts an organization's performance (e.g., Allen, Bryant, & Vardaman, 2010; Heavey, Holwerda, & Hausknecht, 2013), making it important to understand its antecedents.

We contribute to this dialogue by examining unexplored dynamic relationships and suggest that increases in representation of women will lead, over time, to decreases in collective employee turnover, and show how the rate of change impacts outcomes. We build theoretical support for our explanation by taking a relational view of human resources (HR) (Hall, 1996; Methot, Rosado-Solomon, & Allen, 2018; Sun, Aryee, & Law, 2007). We also draw on research about job embeddedness (Mitchell et al., 2001) for theoretical support:

> Embeddedness suggests that a number of strands connect an employee and his or her family in a social, psychological, and financial web that includes work and non-work friends, groups, and the community and the physical environment in which he or she lives. The higher the number of links between the person and the web, the more she or he is bound to job and organization. (Mitchell et al., 2001, p. 1104)

We suggest that substantive and swift positive changes in the representation of women alter dyadic and collective relationships at an organization, which results in decreases in collective employee turnover. We test our hypotheses with 14 years of longitudinal employee data from 499 Canadian private and public organizations. We use latent curve modeling (LCM), an advanced methodology ideally suited for longitudinal analysis, and find support for our hypotheses. We conclude the paper with theoretical, methodological, and practical implications.

Theory and Hypotheses Development

Collective employee turnover

In contrast to the burgeoning literature on individual turnover that emphasizes individual-level predictors, such as employee demographics, organizational commitment, and job satisfaction (Griffeth, Hom, & Gaertner, 2000; Holtom, Mitchell, Lee, & Eberly, 2008), collective employee

turnover captures "the aggregate levels of employee departures that occur within groups, work units, or organizations" (Hausknecht & Trevor, 2011, p. 353). Interest in understanding collective employee turnover at the firm level of analysis is growing (e.g., Allen et al., 2010; Heavey et al., 2013), partly because it predicts important outcome variables at the group, unit, and firm level (Heavey et al., 2013), including organizational performance (e.g., Allen et al., 2010; Heavey et al., 2013). Two independent meta-analyses demonstrated a significant, negative relationship between turnover and organizational performance (Heavey et al., 2013; Park & Shaw, 2013). Some of the undesirable outcomes of collective turnover include "loss of firm-specific human and social capital, [disruption of] operations and collective function, [that] saddles remaining members with newcomer socialization and training, and increases recruitment and selection costs" (Hausknecht & Trevor, 2011, p. 360). Moderators of the turnover–performance relationship include type of industry, level of employees, size of organization, and operationalization of organizational performance (Hancock, Allen, Bosco, McDaniel, & Pierce, 2013), suggesting underlying complexities in the relationship. Firm performance is driven by many internal and external factors, many of which are relatively distal to organizational processes. Collective employee turnover, in contrast, is a performance metric that is relatively more proximal to organizational processes (Hancock et al., 2013). Hence, employee turnover is useful for measuring firm performance, instead of relying solely on accounting or marketing measures (Johnson, Schnatterly, & Hill, 2013). Given the significant impact of collective employee turnover (including women) on unit- and firm-level performance, it is important to better understand its antecedents.

Antecedents of collective employee turnover. A meta-analysis of collective employee turnover identified six categories of turnover antecedents: HRM inducements and investments, HRM expectation-enhancing practices, shared attitudes toward job and organization, quality of work group and supervisory relations, job alternative signals, and job embeddedness signals (Heavey et al., 2013, p. 5). The analysis revealed strongest support for HRM inducements and investments and job embeddedness signals as two categories of antecedents which were negatively related to collective turnover (Heavey et al., 2013). HRM inducements and investments include benefits, high-commitment HR systems, internal mobility, participation-enhancing work design, relative pay, and training. These elements signal that the organization invests in the employee–organization relationship for mutual benefit (Heavey et al., 2013).

For our theory building, we specifically place emphasis on job embeddedness, because it is consistent with a relational view of human resources. Job embeddedness includes employees' links to others (individuals, teams, and groups), perception of fit (with their role, organization, and community), and perception of costs of quitting, in short, "links," "fit," and "sacrifice" (Mitchell et al., 2001). Newer turnover models highlight job embeddedness as a better predictor of turnover than organizational commitment, job satisfaction, and job alternatives (Lee, Mitchell, Holtom, McDaniel, & Hill, 1999; Lee, Mitchell, Sablynski, Burton, & Holtom, 2004). Earlier ideas about predictors of voluntary individual turnover include perceived desirability and ease of exiting one's job (March & Simon, 1958), as well as job satisfaction, commitment, and job alternatives (Hom & Griffeth, 1995; Maertz & Campion, 1998). We discuss the connection between gender and turnover next.

Turnover by gender. Women's higher propensity to leave a job for home and family responsibilities is well documented (Dalton, Hill, & Ramsay, 1997; Hewlett, Luce, & West, 2005) and can be explained by women's disproportionately higher responsibilities at home. Women are more likely to reduce their paid work hours or leave the labor force altogether to fulfill traditional gender roles, for example, by working as stay-at-home mothers (Becker & Moen, 1999; Bianchi, 2000; Gjerdingen & Center, 2005). Married women are more likely to quit for family reasons than married men,

because they spend three times more time on household and childcare responsibilities (Keith & McWilliams, 1997; Theodossiou, 2002). A contributing factor for exit due to such reasons stems from organizations not effectively accommodating family obligations or even penalizing employees who make use of existing accommodations (Hill, Märtinson, Ferris, & Baker, 2004; Johnson, Lowe, & Reckers, 2008). A host of other at-work factors influence women's decisions to stay versus quit; these include lower pay, fewer development or international opportunities, more career obstacles, poorer access to information networks, as well as outright gender and sexual harassment (Hom et al., 2008, pp. 4–5). In contrast, work-related factors like organizational job enrichment and opportunities for advancement (Miller & Wheeler, 1992), work-life practices, leave arrangements, and flexible work hours (Kulik & Perera, 2016) reduce voluntary turnover.

We draw on the above discussion to develop theoretical explanations about two aspects: first, why and how an increase in the representation of women may generate increased job embeddedness for women and men; and second, why and how such an increase in job embeddedness is associated with a decrease in collective employee turnover.

A relational approach to women, men and turnover

We take a relational view of HR to explain the relationship between representation of women and collective turnover. A relational approach to the employment relationship is concerned with the processes that allow an organization to cultivate high-quality, mutual relationships with its employees, which is built on assumptions of reciprocity and interdependence (Hall, 1996; Sun et al., 2007). This approach emphasizes that "the interplay between HR practices and informal relationships perforate deeper than resource flows; they also influence how individuals view and define themselves in the context of their dyadic and collective relationships" (Methot et al., 2018, p. 2). High performance HR practices signal an organization's long-term investment in employees, such that employees are likely to reciprocate the organization's efforts (Sun et al., 2007). Benefits include higher task performance, increased citizenship behavior, and higher affective commitment to the employer (Tsui, Pearce, Porter, & Tripoli, 1997). Employees are more likely to perform to the best of their abilities and to assist others (Tsui et al., 1997; Sun et al., 2007). HRM practices are associated with lower employee turnover, higher productivity, and higher financial performance (Huselid, 1995).

HRM inducements and investments and job embeddedness signals are the most significant antecedents of collective employee turnover (Heavey et al., 2013). We propose that an increased representation of women is likely associated with an organization's systematic efforts to hire more women through HR investments and changes in social dynamics. Increases in the representation of women requires significant HR investments, including active recruitment of women and appointing women to the most senior leadership positions (Ng & Sears, 2017). In the next section, we suggest that job embeddedness supports both the increase and maintenance of the representation of women, and also has positive spillover effects for men, which will decrease collective employee turnover. Subsequently, the number and quality of relationships between women and men will increase, leading to higher job embeddedness for all employees, and lower collective employee turnover.

Representation of women and organizational embeddedness

Others have used the term "social integration" through on-the-job links (O'Reilly, Caldwell, & Barnett, 1989) to describe job embeddedness. Lack of social integration is a critical factor in explaining why women do not flourish and instead leave organizations, especially in organizations with unbalanced gender compositions. Token women in predominantly male work settings are socially isolated (Kanter, 1977). Women in settings dominated by men are less comfortable

(Riordan, Schaffer, & Stewart, 2005; Tsui & Gutek, 1999). Women who work in such settings do not see themselves as part of the "in-group" and do not bond with men across demographic differences, such that women experience weaker organizational attachment and greater social isolation (Riordan et al., 2005). Higher diversity in work groups is associated with reduced psychological attachment among group members, so increasing the likelihood that individuals will psychologically or in reality leave the group (Konrad, Seidel, Lo, Bhardwaj, & Qureshi, 2017; Tsui, Egan, & O'Reilly, 1992). Tsui and colleagues (1992) highlight an adjustment process involved with increasing diversity that can make majority and minority members feel uncomfortable.

Women are more sensitive and attentive to job embeddedness cues and accruements (Mitchell et al., 2001) because of their higher sensitivity towards social and affiliative aspects, and show greater concern for others (Eagly & Wood, 1991; Marsden, Kalleberg, & Cook, 1993). Job embeddedness is negatively related to turnover intention and actual turnover, and this relationship is stronger for women than for men (Jiang, Liu, McKay, Lee, & Mitchell, 2012).

Women place very high value on relationships at work (Konrad et al., 2008), suggesting that as the representation of women increases, so will efforts to forge more and higher-quality relationships at work. Thus, we propose that higher representation of women will lead to increased relationship-building in an organization, while lower representation of women will be associated with less relationship-building. Research linking the representation of women and corporate governance supports our argument that changes in the representation of women will impact an organization's social dynamics. The relative number of men and women in the boardroom is critical. Rich interview data of corporate directors and CEOs shows that a critical mass of three women leads to a fundamental difference in the boardroom, including improved corporate governance (Konrad et al., 2008), which is consistent with tipping point or critical mass arguments (Kanter, 1977). Three or more women had a profound impact on the process and outcomes of corporate governance: women felt supported and strengthened by other women, were more comfortable and better integrated, such that they contributed more actively and their input was not perceived to be limited to representing a woman's point of view (Konrad et al., 2008). The resultant boardroom environment became more open and collaborative, which positively impacted all members regardless of gender (Konrad et al., 2008).

While this research is at the board level of analysis, we suggest that similar relational effects are likely throughout an organization. Higher representation of women in senior leadership roles had a positive effect on women throughout an organization because differences in representation of women at the top change the perception of women at lower levels (Ely, 1994; Milliken & Martins, 1996). As the representation of women increases, women and their contributions become more appreciated by other employees, giving them better access to organizational resources and support (Kanter, 1977). Female executives contribute informational and social diversity and motivate women employees at lower levels (Dezso & Ross, 2012). Offering organizational newcomers the opportunity to form relationships with others as part of socialization processes creates perceived support and a sense of embeddedness in the web of relationships at work (Allen & Shanock, 2013; Lee et al., 2004).

Good for men too

We suggest that the benefits from higher representation of women extends to men. Drawing on the relational view of HR, we suggest that changes in the representation of women impact dyadic and collective relationships that increase job embeddedness, which will lead to decreasing collective employee turnover. As the representation of women increases, an organization becomes more responsive to institutional pressures and work–family issues (Ingram & Simons, 1995).

Work–family programs and policies are not only important to women, but ameliorate the situation for men as well (Ahuja, Chudoba, Kacmar, McKnight, & George, 2007; Carr, Boyar, & Gregory, 2008). While token women tend to be socially isolated (Kanter, 1977), token men tend to be socially well integrated into female work groups (Fairhurst & Snavely, 1983). Hence, as the representation of women increases, women will transition from being isolated to integrated, while men will become further integrated. This means that the social context in which women and men operate at work will change with increasing representation of women.

In organizations with more women in leadership positions and throughout the organization, women have a more positive view of their gender and will behave according to task demands rather than enact historical gender norms (Ely, 1995). Such lessening of conformity to traditional gender roles opens up possibilities for men to display behavior that is historically associated with female gender and the reverse for women (Ely, 1995), therefore broadening possibilities for behavior and roles across genders.

Increases in the representation of women can improve behavior of men towards others in the form of interpersonal sensitivity. Interpersonal sensitivity refers to respect and care in the treatment of others, crowding out disrespectful behavior and workplace incivility (Williams & Polman, 2014). Interpersonal sensitivity in mixed-gender interactions is often assumed to originate from women who behave more sensitively because of their dispositional or socialized tendency towards sensitivity; however, men in mixed-gender groups within professional settings behave in more sensitive ways towards other team members, as well as towards external clients (Williams & Polman, 2014).

Increase in the representation of women in an organization leads to increase in the opportunity for mixed-gender interactions, which results in more sensitivity and respect in interpersonal interactions. Members of diverse groups, who had time to interact with each other meaningfully, have been found to acquire more accurate and less stereotypical information about each other, thereby creating opportunities to work with members' deeper-level differences and similarities, rather than seeing their interactions derail due to surface-level demographic differences (Harrison, Price, & Bell, 1998). As we explain next, such changes in the social dynamics at work will meaningfully impact collective employee turnover.

Representation of women, job embeddedness, and employee turnover

We propose that an organization's overall representation of women shapes the social context of interpersonal interactions, such that it has a direct impact on lowering total employee turnover. Our line of reasoning is consistent with Kanter's (1977) tipping point argument. A tipping point occurs when the number of women reaches a critical mass where the nature of collective interactions changes qualitatively, such that women will gain more trust and better access to resources (Kanter, 1977; Konrad et al., 2008). We suggest that as an organization increases its representation of women, it experiences relational benefits in the form of improved interpersonal interactions that increase employees' job embeddedness across genders. Hence, an organization's work context is improved for both women and men. While a lower representation of women is associated with fewer opportunities for existing and incoming women to form relationships with other women, a higher number of women in an organization allows for ally relationships and a shifting of the organization's gender culture (Kanter, 1977; Konrad et al., 2008). Substantive increases in representation of women will make backlash from men less likely, because of the underlying change in the organization's culture, while such backlash is more likely with small increases, for example, by hiring only token women (Kanter, 1977). Positive work relationships will decrease employees' decision to leave an organization even if they are dissatisfied with other aspects of their work

(Maertz & Campion, 1998), while low-quality work relationships are associated with higher employee turnover (Uhl-Bien, Graen & Scandura, 2000). Hence, we argue, a lower representation of women will be associated with collectively fewer relationships and lower job embeddedness, which will ultimately lead to higher turnover. In contrast, the formation of ally relationships that comes with higher representation of women will increase job embeddedness and lower employee turnover. Hence, we hypothesize a negative relationship between "initial" representation of women in an organization and "initial" collective employee turnover, as well as that between "initial" representation of women in an organization and rate of change in collective employee turnover.

Hypothesis 1: The "initial" representation of women in an organization is negatively related to the organization's "initial" collective employee turnover.

Hypothesis 2: The "initial" representation of women in an organization is negatively related to the rate of organization's collective employee turnover.

We further suggest that the rate of change in the representation of women is connected with the rate of change in collective employee turnover. We hypothesize that small and slow beginnings in the representation of women are reflective of less significant HRM investments and programs, while more significant and faster changes in the representation of women are reflective of higher HRM investments and programs, that will be more visible inside and outside the organization. We expect this effect because speed of increase in the representation of women will affect the number of relationships and job embeddedness. A tipping point that alters the organization's gender culture (Kanter, 1977) will be reached more quickly, hence making backlash less likely while speeding up the formation of relationships. Therefore, we hypothesize that faster growth in the representation of women will lead to a slower and less collective employee turnover. Trivial and sluggish beginnings in building representation of women will therefore be less likely to achieve the kinds of social dynamic that will make women, as well as men, feel embedded, and less likely to leave.

Hypothesis 3: The rate of change in the representation of women in an organization is negatively related to the rate of change in the organization's total employee turnover.

Method

For hypotheses testing, we analyzed employment data from Canadian organizations between 1997 and 2010. Our final sample comprised a population of 499 regulated organizations that submit employment annual equity reports each June. Our data were sourced from annual Employment Equity reports at the Ministry of Labour, the Government of Canada (www.hrsdc.gc.ca). Organizations operate in one of four industry groups: banking, telecom, transportation, and other (a collection of smaller industries). The Canadian government groups organizations into these industry categories for relative performance ratings.

Employment Equity reports have been collected by the Canadian government since 1986, but only data from after 1997 is publicly available.[3] The government ensures the reports' accuracy and regularity because they are used for public policy. Regulated companies are routinely audited and there is follow-up of companies that file late. Regulated organizations have no reasonable motivation to misrepresent their progress in the representation of designated groups, including women, because they are not required to meet any quota and because there is no punishment for slow or no improvements. Hence, we deem the data reliable and accurate.

Our dataset contained 499 organizations over 14 years, a total of 4990 organization year observations. This represents 28.6 percent missing observations because of unavailable organization reports.[4]

Organization reports may be missing for four reasons. First, an organization may have reported in 1997, but was no longer reporting in 2010, because it went out of business or because it dropped below 100 employees.[5] Organizations did not necessarily have the same start and end dates. For example, going out of business was relatively frequent, while those dropping below 100 employees represent only a minor factor as can be seen from organization sizes in the sample. Second, an organization may have started reporting sometime after 1997 and was still reporting in 2010. This was a common pattern, as new organizations with 100 or more employees entered the federally regulated industries. Third, an organization may have started after 1997 and then dropped out of the list before 2010. Fourth, an organization may have been included in the list for the entire time period between 1997 and 2010, but failed to submit a report for certain years. This last pattern was rare. We included all currently reporting organizations, as well as those that reported in any years between 1997 and 2010, to avoid a survivor bias in our dataset. Of the 4990 organization years, 266 years were from the banking category (5.3%), 889 years from telecommunications (17.8%), 3031 years from transportation (60.7%), and 804 years from "other," which combined various industries (16.1%).

Variables

Our dependent variable, *collective employee turnover*, was measured as the ratio of number of full-time employees terminated during a given year to the total number of full-time employees in that year. We used full-time employees because they represent the most significant type of human capital loss (Shaw, Park, & Kim, 2013). *Collective employee turnover* is often reported irrespective of gender differences, which was also the case for the database that we analyzed. We measured *representation of women*, our independent variable, as the ratio of female full-time employees to total full time employees in a given year.

We controlled for sector/industry using three dummy variables for banking, telecommunication, and transportation. We used *other* as a reference category. We used a dummy variable for service industry (reference category: manufacturing) and for public ownership (reference category: private ownership). We controlled for organization size using total employees as a proxy.[6] As total employee numbers varied over time, we had two options, using them as time-variant covariate or growth process. Staying consistent with how we have treated other time-variant variables, we opted for modeling size as growth process.[7]

Analysis

We used latent curve modeling (LCM), which utilizes the structural equation modeling framework (Bollen, 1989; Qureshi & Compeau, 2009), to model longitudinal data and estimate trajectories (Bansal, Gao, & Qureshi, 2014; Bollen & Curran, 2006; Qureshi & Fang, 2011). LCM supports analysis of: (a) intrafirm change over time; and (b) interfirm variations in intrafirm change over time (Ployhart & Vandenberg, 2010; Riaz, Rowe, & Beamish, 2014). LCM provides a tool for identifying and modeling the patterns of changes that occur over time, estimating "an unobserved trajectory that gave rise to the repeated measures" (Bollen & Curran, 2006, p. 34). In LCM analysis, the primary interest is not the actual value of an observation at different time points, but rather in the unobserved latent trajectory underlying those measurements (Chan, 1998; Qureshi & Fang, 2011). We used LCM to test variance in unobserved latent trajectories.

In addition, our goal was to test multivariate relationships in growth processes, i.e., effects of growth factors of trajectories for the *representation of women* on growth factors of trajectories for *collective employee turnover*. Multivariate LCM (MLCM) allows for modeling relationships between growth factors of one growth process with the growth factor of another growth process

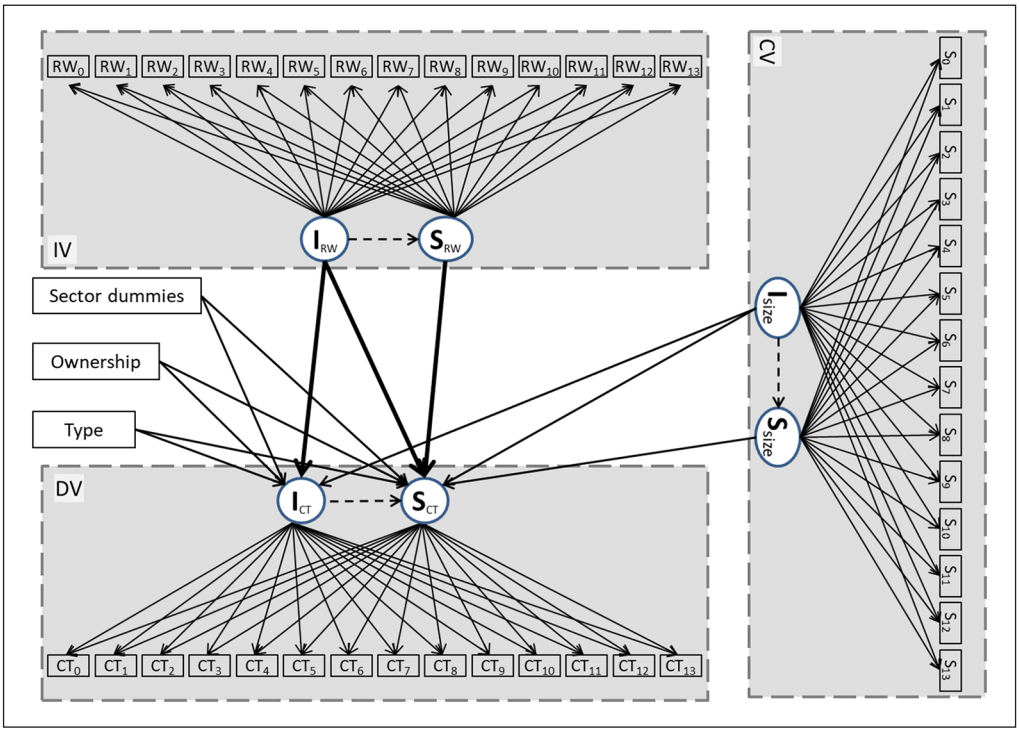

Figure 1. MLCM Model for the Latent Curve Processes for Representation of Women and Collective Employee Turnover, and Their Interrelationships.
Notes: I_{RW} = Representation of women at the start of the analysis period; S_{RW} = Rate of change in representation of women; I_{CT} = Collective employee turnover at the start of analysis period; S_{CT} = Rate of collective employee turnover; I_{size} = Size of the organization at the start of analysis period; S_{size} = Rate of change of the size of the organization; paths with dashed arrows $I_{RW} \rightarrow S_{RW}$, $I_{CT} \rightarrow S_{CT}$, and $I_{size} \rightarrow S_{size}$ were included for controling effect of level on rate for each growth process. Sector dummies box represents three dummies (individual dummies not shown for sake of clarity).

(Bollen & Curran, 2006; Xu, Blozis, & Vandewater, 2014). We used the MLCM technique to test H1, H2, and H3. In our literature search we found only one paper (Bansal et al., 2014) published in *Organization Studies* that used LCM; however, it provided only a brief treatment of LCM and did not use MLCM. Therefore, we provide a detailed account of the LCM and MLCM models below.

LCM models estimate random intercepts and random slopes (linear or higher order) for each case (i.e., organization, in our study) in the sample so that trajectories over time for each case can be constructed. LCM requires observed (or latent) variables to be measured at different time points. These observed variables are then modeled as "indicators" of the factors that represent the trajectory of unobserved phenomena. For example, Figure 1 represents a MLCM, where three LCM models are shown; one is labeled IV, the second DV, and the third CV, to indicate predictor, criterion, and control variable growth processes. Each of these processes is modeled as two factor growth trajectories. The growth factors of the IV process, which is the representation of women, are labeled as I_{RW} and S_{RW}, for initial level and slope (or change) respectively. Similarly, the growth factors of the DV process, which show the collective employee turnover, are labeled I_{CT} and S_{CT}, for initial level and slope (or change), respectively. In addition, there is a control growth process for organization size (total employees). The growth factors are labeled I_{size} and S_{size}. Each of these processes are modeled across fourteen time points (years), labeled RW_0, RW_1, RW_2 . . . RW_{13} for

Table 1. Time Period-wise Descriptive Statistics of Representation of Women and Collective Employee Turnover.

Time	Representation of women				Collective employee turnover			
	Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis
T_0	0.30	0.18	0.38	–0.74	0.13	0.09	1.25	1.65
T_1	0.30	0.18	0.39	–0.75	0.13	0.09	1.83	4.92
T_2	0.30	0.18	0.33	–0.81	0.13	0.09	1.55	3.05
T_3	0.29	0.18	0.40	–0.84	0.14	0.10	1.19	1.79
T_4	0.28	0.18	0.48	–0.69	0.15	0.11	1.16	0.95
T_5	0.29	0.18	0.53	–0.63	0.14	0.10	1.42	2.76
T_6	0.28	0.18	0.58	–0.62	0.14	0.10	1.17	1.23
T_7	0.26	0.17	0.68	–0.40	0.14	0.11	1.21	1.08
T_8	0.27	0.17	0.65	–0.45	0.15	0.11	1.19	1.21
T_9	0.27	0.17	0.68	–0.31	0.17	0.12	1.60	3.69
T_{10}	0.26	0.17	0.67	–0.34	0.17	0.11	1.07	0.87
T_{11}	0.26	0.17	0.71	–0.37	0.18	0.11	1.29	3.01
T_{12}	0.27	0.17	0.70	–0.41	0.15	0.10	1.11	1.25
T_{13}	0.26	0.16	0.67	–0.40	0.16	0.12	1.86	4.83

women representation, CT_0, CT_1, CT_2 . . . CT_{13} for turnover ratio, and S_0, S_1, S_2 . . . S_{13} for organization size. The interrelationship between the growth processes is shown by the causal arrows pointing from growth factors of representation of women and growth factors of organization size towards growth factors of collective employee turnover.[8]

LCM is an improvement over traditional autoregressive models because it not only allows for modeling change in variables over time points (Bollen & Curran, 2006), but also utilizes the unique strengths of structural equation modeling over commonly used techniques, such as panel data analysis, that do not allow estimation of errors (Ployhart & Vandenberg., 2010). LCM has been utilized in earlier studies on individual-level phenomena in organizations (Chan & Schmitt, 2000; Qureshi & Fang, 2011; Ng, Feldman, & Lam, 2010; Van Iddekinge et al., 2009) and in other disciplines (Chan & Schmitt, 2000; Curran & Willoughby, 2003; Fleming, Mason, Mazza, Abbott, & Catalano, 2008) resulting in calls to explore this technique in firm-level phenomena (Ployhart & Vandenberg, 2010; Williams, Edwards, & Vandenberg, 2003).

As with any other estimation technique, missing data can result in issues with estimation of LCM parameters (Cheung, 2007). Therefore, we used the full-information maximum likelihood (FIML) method for missing data treatment. FIML is a more robust technique than list-wise deletion, pair-wise deletion, mean replacement, or multiple imputation methods (Arbuckle, 1996; Bollen & Curran, 2006; Little & Rubin, 2002).[9] We had a small amount of missing data due to organization exits, either because organizations went out of business or dropped below 100 employees. FIML is an appropriate technique for handling missing data due to such exits because data in these cases are missing at random (Bollen & Curran, 2006; Riaz et al., 2014).

Results

Table 1 shows the descriptive statistics. We conducted analyses on the following: the representation of women (measured as the ratio of full-time women employees to the total full-time employees in an organization) and collective employee turnover (measured as the ratio of full-time employees terminated to the total full-time employees in an organization).

Table 2. Comparison of LCM models for Representation of Women.

Models	CFI	TLI	RMSEA	Variance			
				Intercept	Linear	Quadratic	Cubic
LCM1	.958	.964	.078	.034(.000)	.005(.000)	—	—
LCM2	.956	.958	.107	.033(.000)	.019(.000)	.008(.000)	—
LCM3	.959	.959	.106	.032(.000)	.042(.000)	.134(.000)	.031(.000)
Free	Analysis did not converge after repeated try						

Notes: LCM1, LCM2, and LCM3 refer to linear, quadratic, and cubic latent curve models, respectively; although all three models perform equally well on CFI and TLI, LCM1 performs better on RMSEA. It is also a more parsimonious model.
"Free" model represents an unconstrained growth model.
"—" indicates that quadratic and cubic parameters are not required for LCM1 and a cubic parameter is not required for LCM2.
p-value in parentheses.

For each year in which data were collected, the representation of women showed very low skewness and kurtosis. The mean varies from 0.30 in T_0 to 0.26 in T_{13}, with a standard deviation from 0.18 to 0.16 in the corresponding period. The mean for collective employee turnover was 0.13 in T_0 and 0.16 in T_{13}. Skewness and kurtosis were low for each of the years except for T_{13}, which had kurtosis of 4.83.[10] We provide additional details in Appendix 1 that shows time period-wise mean and standard deviation for representation of women and employee turnover across different categories.

As a next step, we conducted latent curve modeling to estimate best fit trajectories of the representation of women. Table 2 reports results for three models: linear (LCM1), quadratic (LCM2), and cubic (LCM3).[11] Table 2 shows that all three models had reasonable comparative fit indices (CFI, TLI) and achieved reasonable fit of 0.95 (Hu & Bentler, 1999). However, for LCM2 and LCM3, RMSEA was higher than .10, much higher than the recommended level of .08. RMSEA for LCM1 was .078, which is in the desirable-level range (Hu & Bentler., 1999). Given that no model had any specific advantage over other models, we decided to use the LCM1 model (i.e., linear model) for both the representation of women as well as employee turnover, following the principle of parsimony: in the event of equally fit models, the least complex model should be chosen. We followed the same approach for the organization size growth model, and decided to use LCM1, i.e., the linear model.

A condition for MLCM implementation is to have significant variances in both growth parameters (Qureshi & Fang, 2011). For the linear model, the variance for the intercept, i.e., var(I_{RW}), was 0.034 (t-value = 15.52; $p < 0.001$) and the variance for the slope, i.e., var(S_{RW}), was 0.005 (t-value = 12.26; $p < 0.001$). The mean value for the intercept, i.e., mean(I_{RW}), was 0.296, and the mean value for the slope, i.e., mean(S_{RW}), was -0.0025. Figure 2 shows the estimated mean latent trajectory (as a thick dashed line) as well as the estimated latent trajectories of 30 randomly chosen organizations. Even though the mean trajectory has a low (in magnitude) and negative slope, the other trajectories show various patterns, including a moderate negative slope, low negative slope, low positive slope, and moderate positive slope.

We also estimated best-fit trajectories for collective employee turnover. Four models are shown (Table 3): linear (LCM1); quadratic (LCM2); cubic (LCM3); and freely estimated (Free). LCM1 had the best fit on CFI, TLI, and RMSEA; however, all other models also fit reasonably well. On account of parsimony, and better CFI and TLI fit, we decided to use the LCM1 model, i.e., linear model, for collective employee turnover.

For the linear model of collective employee turnover, the variance for the intercept, i.e., var(I_{CT}), was 0.007 (t-value = 10.14; $p < 0.001$) and the variance for the slope, i.e., var(S_{CT}), was 0.004

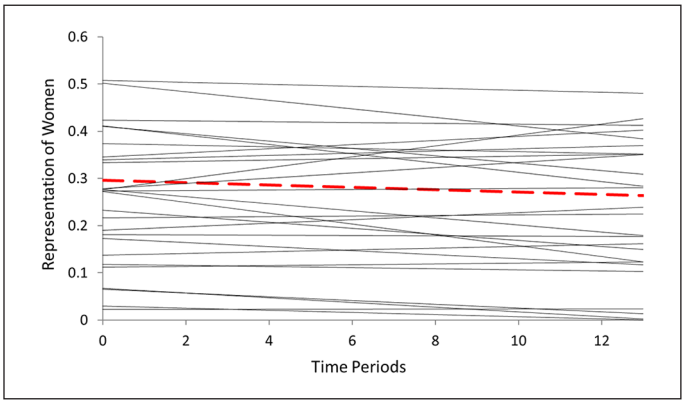

Figure 2. Estimated Latent Trajectories of Representation of Women.
Note: Only trajectories of randomly selected 30 firms are shown. Mean trajectory is shown by a thick dashed line.

Table 3. Comparison of LCM Models for Collective Employee Turnover.

Models	CFI	TLI	RMSEA	Variance				
				Intercept	Linear	Quadratic	Cubic	Unspecified
LCM1	.963	.969	.049	.007(.000)	.004(.000)	—	—	—
LCM2	.953	.956	.051	.006(.000)	.033(.000)	.015(.000)	—	—
LCM3	.958	.958	.050	.007(.000)	.090(.001)	.255(.004)	.059(.006)	—
Free	.942	.940	.059	.007(.000)	—	—	—	.006 (.670)

Notes: LCM1, LCM2, and LCM3 refer to linear, quadratic, and cubic latent curve models, respectively. "Free" model represents an unconstrained growth model, where slope factor is not pre-defined and freely estimated. Although all four models perform equally well on CFI, TLI, and RMSEA, LCM1 performed well on all the three fit indices as well as representing the most parsimonious model.
"—" indicates that quadratic and cubic parameters are not required for LCM1 and a cubic parameter is not required for LCM2.
p-value in parentheses.

(*t*-value = 6.556; $p < 0.001$). Variance for intercept and slope were both statistically significant, fulfilling the requirement for proceeding to MLCM. The mean value for the intercept, i.e., mean(I_{CT}), was 0.144, and the mean value for the slope, i.e., mean(S_{CT}), was 0.0017. Figure 3 shows the estimated mean latent trajectory (as a thick dashed line) as well as the estimated latent trajectories of 30 randomly chosen organizations. The mean trajectory has a low and positive slope. The other trajectories show various patterns ranging from a moderate negative slope, low negative slope, low positive slope, to a moderate positive slope.

As a next step, we used the MLCM model shown in Figure 1. The overall fit for this model was good (CFI = .96; TLI = .96; RMSEA = 0.059; chi-square = 5124.86; df = 1081; p= .000) (Hu & Bentler, 1999). The results are shown in Table 4 and support H1, as the initial level of representation of women (I_{RW}) had a significant negative (β= -0.117; *t*-value = 1.672; p= 0.047[12]) effect on the initial level of employee turnover (I_{CT}), i.e., higher initial level of representation of women was associated with lower initial collective employee turnover. This indicates that an increase of *one* standard deviation in the representation of women was associated with a lowering of *.117* standard deviations in collective employee turnover.

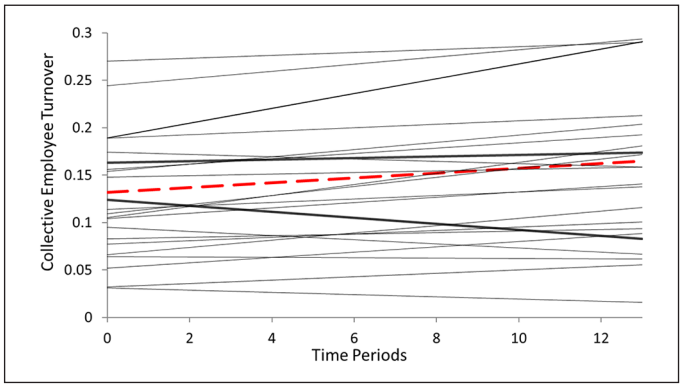

Figure 3. Estimated Latent Trajectories of Collective Employee Turnover.
Note: Only trajectories of randomly selected 30 firms are shown. Mean trajectory is shown by a thick dashed line.

Table 4. Multiple Latent Curve Model Analysis.

	DV = I_{CT}	DV = S_{CT}
I_{RW}	–0.117 (0.047)	–0.211 (0.003)
S_{RW}	—	–0.118 (0.035)
I_{size}	–0.006 (0.452)	–0.192 (0.000)
S_{size}	—	–0.005 (0.464)
Sector dummy: Reference category: others		
Banking	0.132 (0.018)	0.047 (0.250)
Telecommunication	0.152 (0.032)	–0.015 (0.432)
Transportation	0.189 (0.028)	0.102 (0.165)
Type (manufacture = 0, service = 1)	0.052 (0.240)	0.007 (0.466)
Ownership (private = 0, public = 1)	–0.166 (0.003)	–0.064 (0.467)
R-Square %	8.3 (0.001)	25.8 (0.000)
Chi-square (df, *p*-value)	5124.86 (1081, 0.000)	
CFI, TLI, RMSEA	0.096, 0.096, 0.059	

Notes: *p*-value in parentheses. I_{RW} = Women diversity at the start of the analysis period; S_{RW} = Rate of change in representation of women; I_{CT} = Employee turnover at the start of analysis period; S_{CT} = Rate of employee turnover; I_{size} = Size of the organization at the start of analysis period; S_{size} = Rate of change of the size of the organization; paths $I_{RW} \rightarrow S_{RW}$ (β = -0.349; *t*-value = 7.914; p = 0.000), $I_{CT} \rightarrow S_{CT}$ (β = -0.453; *t*-value = 6.700; p = 0.000), and $I_{size} \rightarrow S_{size}$ (β = -0.226; *t*-value = 4.910; p = 0.000) were included for controling effect of level on rate of each growth processes.
CFI = .96; TLI = .96; RMSEA = 0.059; chi-square = 5124.86; df = 1081; p = .000.

Similarly, H2 was supported, because the initial level of representation of women (I_{RW}) had a significant negative (β = -0.211; *t*-value = 2.722; p = 0.003) effect on the collective employee turnover rate (S_{CT}). Thus, we found that the higher the initial level of representation of women, the lower the collective employee turnover rate. This would indicate that an increase of *one* standard deviation in representation of women was associated with the lowering of *.211* standard deviation in the rate of collective employee turnover. Finally, H3 was supported because results showed that the rate of change in representation of women (S_{RW}) would affect the employee turnover rate (S_{CT}). We found that S_{RW} was the significant predictor of S_{CT} (β = -0.118; *t*-value = 1.810; p = 0.035). The lower (more negative) the rate of change in the representation of women, the higher (more

positive) the rate of change in employee turnover. Hence, an increase of *one* standard deviation in the rate of change in the representation of women was associated with a lowering of *.118* standard deviations in the rate of employee turnover.

Discussion

Theoretical implications and contributions

This study has investigated the dynamic relationship between an organization's representation of women and collective employee turnover. Results offer insight into longitudinal patterns of change in the relationship for a multi-industry data sample. We have suggested that a higher representation of women changes the job context for dyadic and collective interactions and relationships. We suggest that if the increases in the representation of women are substantive and swift, there are benefits that accrue to all employees, regardless of gender, in the form of higher job embeddedness, which will decrease collective turnover. As such, the present study contributes insights to literatures on diversity, strategic human resource management (SHRM), and HR capital.

Others have challenged the general assumption that minority members bear the brunt of diversity effects by demonstrating that higher diversity in a work unit is associated with lower psychological attachment, reflecting a symmetric costs to an organization and its members (Tsui et al., 1992). We also highlight symmetric effects, in this case that benefits of an increase in diversity through representation of women—if significant and swift—can trigger changes in dyadic and collective relationships that create greater job embeddedness for both women and men. The consequent decrease in collective employee turnover accrues as a symmetric benefit to both women and men. In addition, there are significant benefits to organizations, because turnover costs and loss of talent are reduced. Hence, our study underlines that diversity, with a particular emphasis on women, can bring negative or positive effects, and that it matters *how* an organization goes about altering its representation of women.

Others have warned of "diluted saliency of organizational human resource change strategies," where minor demographic shifts in the representation of women or minorities did not lead to higher group valence, climate or consensus, but even damaged the climate in the short term (Kossek et al., 2003, p. 347). Our study goes one step further, by showing that not only the size of shifts matters, which may be slight or substantive, but also the speed of shifts, which may be sluggish or swift. We reveal that the representation of women impacts collective employee turnover, which matters to organizational performance and other important organizational factors, such as climate (Kossek et al., 2003).

Our study contributes to the debate on mixed effects between representation of women and collective employee turnover (Hom et al., 2008) by providing a more nuanced understanding of the time sensitivity of the relationship. Our longitudinal theorizing and analysis have allowed us to capture the emergence of effects over time that are difficult to discern at any particular point in time. There appears to be fruitful research opportunity in probing longitudinally the development of job embeddedness as representation of women in organizations continues to grow over time. Job embeddedness will likely take time to develop and may have critical tipping points as representation of women varies over time.

Our study suggests that the value of strategic HR is time-sensitive rather than static, due to social dynamics and interdependence between individuals. An important assumption in examining the link between diverse HR and performance, including gender diversity effects, is that HR and associated benefits are retained over some time so that performance effects can materialize. We show that organizations have unique patterns of change in their representation of women,

which are associated with unique patterns in collective turnover. Understanding changes in the representation of women over time matters because it impacts organizational performance. Different proportions of organizational gender diversity have different effects on organizational performance (Ali, Kulik, & Metz, 2011). Hence, our temporal study of organization-level representation of women contributes to a better understanding of the dynamic link between gender diversity and performance outcomes, including collective employee turnover. The longitudinal design of our study also offers some confidence about directional causality. The relationship we are observing is the effect of representation of women on collective turnover, rather than its reverse.

Others have utilized resource-based theory (RBT) as a theoretical lens to understand the strategic importance of human assets (Coff, 1997) and diverse human resources (Dwyer, Richard, & Chadwick, 2003; Hill, Upadhyay, & Beekun, 2015; Richard, 2000; Richard, Murthi, & Ismail, 2007). The RBT is a central theory in strategy that explains differences in firm performance through differences in resource endowments (Barney, 1991; Wernerfelt, 1984). According to the RBT, human resources offer performance benefits to a firm, if they are valuable, rare, inimitable, and non-substitutable (Barney, 1991; Hill et al., 2015; Huselid, 1995). Diverse human resources promise to be strategically important because they are valuable, rare, inimitable, and non-substitutable (Hill et al., 2015). However, the strategic value of diverse human resources depends on how diversity effects play out given that there is a significant body of research demonstrating the complexity and complications of managing a diverse workforce, including gender diversity (e.g., Schwab, Werbel, Hofmann, & Henriques, 2016).

Our findings question general assumptions about the value of HR over time and highlights the importance of examining HR, including diverse HR, dynamically over time. The rich literature on human capital resource is adding essential microfoundational strength to the RBT (for a review see Nyberg, Moliterno, Hale, & Lepak, 2014). Human capital resource is a "unit-level resource that is created from the emergence of individuals' knowledge, skills, abilities, and other characteristics" (Ployhart & Moliterno, 2011, p. 127). In contrast to most strategic resources, human assets can leave the organization (Coff, 1997) and may even join competitors, so that decisions to invest in human resources are more uncertain and riskier than other resource investment decisions. At the unit-level, collective employee turnover depletes HR capital because quantity and quality of knowledge, skills, attitudes, and other attributes that individuals contribute to an organization are lost (Nyberg & Ployhart, 2013).

Longitudinal approaches to empirical tests of the flows of HR capital, both in and out of an organization, are needed (Nyberg & Ployhart, 2013), given that empirical tests of resource-based logic rely on "single respondent, cross-sectional, survey designs" (Wright, Dunford, & Snell, 2001, p. 709). In their thorough review of unit-level human capital from an RBT perspective, Nyberg et al. (2014) highlight the importance of the dynamic nature of human capital resources, but also note the sparse empirical examination in that regard. We therefore believe that our study offers a valuable contribution to the literature.

We have demonstrated that both the size and the rate of change in the representation of women matter. This finding is consistent with Nyberg and Ployhart (2013), who noted that changes in collective turnover may have a greater impact on the dynamic relationship between human capital resources and unit performance than the actual level of turnover. A rapid erosion of human resources will likely be more disruptive to an organization than a slow one (Nyberg & Ployhart, 2013). We agree with this assumption, but also point out that our study suggests that a rapid and substantive change in the representation of women will have more positive effects for an organization than a slow and incremental one. A more rapid increase will bring more and better relationships and reduce collective employee turnover, which would otherwise mean loss of HR capital. The ability to affect the level and rate of changes in the quantity and quality of human capital resources

amounts to a dynamic capability that is of strategic importance to organizations (Nyberg et al., 2014). In this regard, our study also contributes to SHRM, which speaks to "the pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals" (Wright & McMahan, 1992, p. 298). We show that the magnitude and speed of HR deployments and practices, such as hiring and retention, matter to organizational outcomes, including employee turnover. Our study suggests that a substantive and swift increase in the representation of women will be associated with a decrease in collective employee turnover.

Methodological implications

In addition to novel theoretical development, the study also makes a methodological contribution. Our paper offers a thorough description of how to apply LCM, which is novel to organization studies. We explain in detail our use of latent curve modeling (LCM), which is an advanced methodology that is ideally suited for longitudinal analysis. Long-term growth patterns are easily overlooked by more traditional statistical analysis, highlighting the need for empirical analysis using empirical tools such as LCM (Ployhart & Vandenberg, 2010). Traditional statistical methods that take a static approach to resources are unable to model dynamic relationships and would not pick up the longitudinal effects over time. In contrast, LCM can clearly observe such longitudinal effects and relationships.

Our study revealed that swift and substantive increases in the representation of women are associated with lower employee turnover, while sluggish and trivial increases are associated with higher turnover. The sluggish and trivial increases were followed by gradual losses of employees over time, which is analogous to a slow drain. Such a slow drain would be challenging for researchers and practicing managers to detect with traditional statistical methods. Hence, we see great future potential for LCM research to test dynamic relationships between other forms of diversity, for example race, and other measures of organizational performance.

Limitations

The strengths of our study include: assessment of representation of women as an important input to an organization's human resources; data for 499 organizations over a 14-year period; and, the use of LCM as an effective and robust methodology that treats longitudinal data appropriately. However, our study was limited by the number of control variables due to the available data and the inability to discern the gender composition in employee turnover.

Due to data availability, this study is unable to speak to more granular factors about the organizations' HRM investments or specific programs that have been shown to support diversity and inclusion efforts (Downey, Werff, Thomas, & Plaut., 2015; Konrad et al., 2016). We speculate, however, that small and slow beginnings in the representation of women are more likely to exist in organizations that also have lower investments in supporting HRM or diversity and inclusion programs. Future research into the connection between actual employee data, especially women employees, and supporting programs would add value to the field of HRM. Similarly, the turnover data were available only at the aggregate level. We did not have access to turnover data separately for men and women. Further research at the disaggregate level will add insight.

Managerial implications

This study has direct implications for practicing managers. Organizations like Accenture and Pepsico, who publicly declare their goals for higher representation of women,[13] may not

necessarily be aware that it matters *how* they go about pursuing such increases. We suspect that a significant number of organizations are pursuing HR strategies that are based on a gradual increase of gender diversity. Gradual increases may appear to be less disruptive and more cost-effective, based on the assumption that gradual increases may avoid backlash from incumbent men (Kossek et al., 2003). Managers may also assume that higher increases in women will lead to higher overall turnover given that women are more likely to leave than men (e.g., Hom et al., 2008).

Our study suggests that managers who wish to build higher representation of women, or build stronger HR diversity in general, would benefit from taking control over *how much* and *how fast* to increase the representation of women. Increasing the representation of women swiftly and substantively, along with an emphasis on building interpersonal relationships and job embeddedness, will avoid costly loss of of human resources.

Our study highlights the difficulty of detecting such losses without appropriate longitudinal statistical methods. Slow drains will be less visible and therefore more challenging to control. The results of this study suggest that women and men are more likely retained over time if the organization uses a strategy that brings in a substantive number of women more quickly. Such an approach to increasing representation of women along with HR investments and supporting programs will have positive effects on social dynamics in the organization: relationships within and between genders have time to develop to offer employees a heightened sense of job embeddedness, so that employees can contribute over the long run rather than exit. Organizations that understand how the magnitude and speed of increasing representation of women affects their efforts to retain and engage women and men will be better able to realize the benefits that a diverse workforce promises to generate.

Conclusion

We examined the dynamic relationship between the representation of women and collective employee turnover. The sophisticated longitudinal analysis of a rich dataset from a population of 499 organizations over a 14-year time period revealed nuanced insights that contribute to literatures on gender, diversity, HR, and resource-based theory. Our theoretical arguments centered around connections between increases in the representation of women and higher job embeddedness, which in turn led to decreases in collective employee turnover. We found empirical support for a negative relationship between an increase in the representation of women and a decrease in collective employee turnover. We found that the rate of change associated with this relationship is important to consider because swift and significant increases in representation of women result in decreases in collective employee turnover. Understanding *how* to pursue such increases will allow organizations to better able achieve their goals of lasting increases in their representation of women.

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ORCID iD

Israr Qureshi https://orcid.org/0000-0002-5263-0587

Notes

1. Retrieved from https://appointments.thetimes.co.uk/article/times-top-50-employers-for-women/, accessed November 5, 2018.
2. https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2015009-eng.htm, accessed October 27, 2018.
3. The year 1997 thus represents the starting point (or initial year) in the sense that the firms are able to see the women ratio in their own industry as well as other industries and may, if motivated, try to adopt more inclusive HR practices.
4. In the analysis section, we provide additional information on the treatment of missing data.
5. Having a minimum of 100 employees is a criterion for reporting requirements.
6. Overall there was no statistically significant differences in the size of the organization across sectors (F-stat = 2.04, *p*-value = 0.85; Banking (mean = 425.64, SD = 70.35); Telecommunication (mean = 401.74, SD = 86.87); Transportation (mean = 357.74, 68.39); Others (mean = 515.84, SD = 122.93).
7. For robustness checks, we conducted additional analysis using size as a time-variant covariate. Our hypotheses were supported using this operationalization of size.
8. There is no arrow pointing from S_{RW} to I_{CT} for the obvious reason that in any coevolving growth processes the change in one process cannot affect the initial state of another process, whereas the initial state of a process can affect the change in another process. The same is true for the absence of an arrow pointing from S_{size} to I_{CT} .
9. All models were re-run using the cases with no missing values, to ensure that our treatment of missing data did not adversely impact our findings. The results remained unchanged.
10. In order to address this moderate level of kurtosis, we re-ran all the analysis excluding T_{13} for both representation of women and collective employee turnover, and results remained unaffected; hence we chose to report our results including T_{13} for both the latent trajectories.
11. We also tried the free latent curve model (Bollen & Curran, 2006), where instead of fixing "loadings" of the trajectories parameters to either linear or non-linear, these "loadings" are freely estimated; however, even after repeated trials, the estimation of the free model did not converge.
12. All the *p*-values reported here are one-tailed *p*-values.
13. Retrieved from https://appointments.thetimes.co.uk/article/times-top-50-employers-for-women/, accessed November 5, 2018.

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Author biographies

Cara C. Maurer is an Assistant Professor of General Management/ Strategy at the Ivey Business School, Western University (London, Ontario). Her research explores longitudinal and multilevel aspects of organizational diversity and inclusion. She is also interested in how individuals' emotions, values and stories influence strategic, organizational, and social change processes.

Israr Qureshi is a Professor at the Research School of Management, Australian National University. His research investigates various aspects of social value creation through electronic commerce, social intermediation, social entrepreneurship, and information and communication technology. He is also engaged in grassroots initiatives to address climate change.

Appendix 1. Time-Period-wise Descriptive Statistics of Representation of Women and Collective Employee Turnover Across Different Categories.

Var	Category	Units	Stats	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}
Representation of women	Sector	G1	Mean	.62	.62	.60	.61	.60	.63	.61	.61	.60	.59	.59	.58	.58	.56
			SD	.09	.07	.09	.08	.09	.08	.09	.09	.08	.08	.07	.07	.07	.08
		G2	Mean	.36	.36	.37	.38	.38	.38	.38	.36	.36	.36	.35	.34	.34	.35
			SD	.09	.09	.09	.09	.10	.09	.09	.11	.12	.12	.12	.12	.12	.11
		G3	Mean	.22	.22	.22	.22	.21	.22	.21	.20	.21	.21	.20	.21	.21	.21
			SD	.15	.15	.15	.16	.15	.16	.15	.15	.15	.15	.15	.15	.14	.14
		G4	Mean	.30	.31	.32	.33	.34	.33	.32	.30	.30	.31	.31	.33	.33	.33
			SD	.19	.19	.20	.19	.19	.19	.18	.16	.17	.17	.17	.17	.17	.17
	Public/private	Public	Mean	.41	.41	.42	.42	.41	.41	.42	.42	.42	.41	.41	.42	.41	.41
			SD	.18	.18	.17	.17	.17	.18	.18	.17	.17	.17	.17	.17	.17	.16
		Private	Mean	.25	.25	.25	.24	.24	.24	.23	.22	.23	.23	.22	.22	.22	.22
			SD	.15	.15	.16	.16	.16	.16	.16	.15	.15	.15	.15	.15	.14	.13
	Manufacture/ service	Mft	Mean	.18	.18	.18	.19	.19	.20	.20	.21	.21	.22	.22	.22	.21	.22
			SD	.11	.10	.11	.10	.10	.09	.09	.08	.09	.09	.09	.08	.08	.08
		Service	Mean	.32	.31	.32	.30	.29	.29	.28	.27	.27	.27	.27	.27	.27	.27
			SD	.18	.18	.18	.18	.18	.19	.18	.18	.18	.18	.18	.18	.17	.17
Collective turnover	Sector	G1	Mean	.11	.11	.12	.16	.14	.12	.11	.10	.11	.12	.12	.14	.12	.12
			SD	.04	.05	.06	.07	.07	.06	.05	.05	.05	.07	.05	.06	.07	.11
		G2	Mean	.15	.14	.14	.13	.13	.13	.12	.12	.13	.14	.16	.18	.15	.14
			SD	.09	.09	.09	.08	.09	.09	.07	.08	.09	.09	.11	.13	.09	.08
		G3	Mean	.13	.14	.14	.15	.16	.16	.17	.16	.18	.19	.19	.19	.16	.17
			SD	.10	.11	.11	.12	.11	.11	.11	.12	.11	.14	.12	.12	.11	.13
		G4	Mean	.11	.10	.10	.11	.11	.12	.09	.08	.11	.11	.12	.13	.12	.12
			SD	.08	.05	.06	.08	.08	.12	.07	.06	.09	.08	.08	.09	.08	.10
	Public/private	Public	Mean	.12	.12	.12	.11	.11	.11	.10	.11	.12	.12	.12	.13	.12	.12
			SD	.07	.09	.08	.08	.09	.08	.05	.06	.06	.06	.09	.08	.07	.11
		Private	Mean	.14	.14	.14	.15	.15	.15	.16	.15	.16	.17	.17	.17	.17	.17
			SD	.10	.09	.10	.11	.11	.11	.11	.11	.11	.13	.11	.12	.11	.12
	Manufacture/ service	Mft	Mean	.10	.10	.11	.13	.13	.14	.11	.10	.12	.13	.12	.13	.12	.15
			SD	.07	.06	.06	.12	.10	.15	.09	.08	.09	.12	.09	.09	.10	.13
		Service	Mean	.14	.13	.14	.14	.15	.15	.15	.15	.16	.17	.18	.18	.15	.16
			SD	.09	.09	.10	.10	.11	.10	.10	.11	.11	.12	.11	.12	.10	.12