

Collective Turnover at the Group, Unit, and Organizational Levels:
Evidence, Issues, and Implications

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Abstract

Studies of the causes and consequences of turnover at the group, unit, or organizational level of analysis have proliferated in recent years. Indicative of its importance, turnover rate research spans numerous academic disciplines and their respective journals. This broad interest is fueled by the considerable implications of turnover rates predicting broader measures of organizational effectiveness (productivity, customer outcomes, firm performance) as well as by the related perspective that collective turnover is an important outcome in its own right. The goal of this review is to critically examine and extract meaningful insights from research on the causes and consequences of group, unit, and organizational turnover. The review is organized around five major “considerations,” including (1) measurement and levels of analysis issues, (2) consequences, (3) curvilinear and interaction effects, (4) methodological and conceptual issues, and (5) antecedents. The review concludes with broad directions for future research.

Keywords: turnover; retention; performance; organizational effectiveness

Employee turnover is one of the most widely studied phenomena in the organizational sciences, historically receiving significant top journal attention, particularly with regard to predicting why individuals leave organizations. As part of the recent shift toward a more strategic approach to studying human resource (HR) management, however, researchers have become increasingly aware of the importance of understanding turnover at the group, unit, and organizational levels. Indeed, as of 2010, more than 100 articles have been published on turnover at these levels, over half of which appeared in the past decade alone. This literature, although largely consistent with the longstanding assumptions that turnover in the aggregate has meaningful implications for organizations, lacks a rigorous analysis of its major antecedents and consequences, as well as its key emergent themes and implications. Thus, our goal here is to provide a comprehensive review of research aimed at understanding collective turnover, which we define as the aggregate levels of employee departures that occur within groups, work units, or organizations.

Overview

The review encompasses turnover research at any level of analysis higher than the individual, including (1) *group* (teams, work groups, or departments, which are often nested within a single organization and/or location); (2) *unit* (standalone establishments such as stores, restaurants, factories, call centers, hotels, or offices); or (3) *organization* (entire companies, firms, or enterprises). Although we refer to individual-level turnover in several places— notably when discussing its implications for collective turnover research—findings from such studies are

not reviewed here (see instead Griffeth, Horn, & Gaertner, 2000; Holtom, Mitchell, Lee, & Eberly, 2008; Horn & Griffeth, 1995; Maertz & Campion, 1998).

Figure 1 summarizes collective turnover's primary antecedents and consequences, according to the extant literature. The figure thus largely represents a descriptive model documenting the myriad main effects in collective turnover research. Also illustrated is the important role of numerous moderators, some of which have also appeared as antecedents or consequences, depending on authors' conceptual rationales, study designs, and organizational contexts. We note that certain causes and consequences apply only at a given level (e.g., group cohesiveness, firm performance), whereas others operate at multiple levels (e.g., size). These and other level-specific issues are addressed throughout the review.

Contextual Organizing Framework

Although Figure 1 chronicles the antecedents and consequences of collective turnover, our aim is to move beyond our summaries of this work to examine several emergent themes that merit researcher attention. We use a contextual lens as an organizing framework for doing so. The integral importance of context has been emphasized in terms of both organizational behavior in general (Cappelli & Sherer, 1991; Johns, 2006) and turnover specifically (e.g., Schwab, 1991). Indeed, contextual considerations, often in the form of interaction effects investigated within studies or proposed in conceptual frameworks, are central to both time-honored (e.g., March & Simon, 1958) and more modern treatments of individual-level turnover (e.g., Horn, Caranikas-Walker, Prussia, & Griffeth, 1992; Trevor, 2001). At the collective turnover level, taking a broad

approach to context reveals a variety of meaningful trends and contradictions that help us to better understand and critique the literature.

Insert Figure 1 Here

We begin the review by briefly characterizing collective turnover in research and practice, first providing general background on U.S. collective turnover levels and then describing our literature search. Next, we organize the review around five collective turnover “considerations” that emerged as meaningful contextual themes relevant to understanding the current state of the study of collective turnover. First, we discuss issues foundational issues of measurement and levels of analysis. Second, we review and synthesize the scholarly literature concerning collective turnover’s main consequences, with particular emphasis on the implications of consequence type (e.g., productivity, firm performance, customer outcomes). Third, we examine research on curvilinear and moderated effects. Fourth, we address methodological and conceptual issues crucial to understanding and conducting collective turnover research, including aspects of sampling, turnover rate types (voluntary and involuntary), empirical modeling, and causal direction. Fifth, we review the numerous studies on collective turnover antecedents such as HR practices and workforce characteristics, at times drawing on the other considerations. Table 1 summarizes the five considerations.

Much of the contextual analysis offered here not only identifies what is known currently but also suggests areas in which future collective turnover research can make the greatest contributions. Consequently, using the studies that underlie the Figure 1 relationships, we draw upon the emergent contextual considerations to both better characterize the collective turnover

literature as a whole and identify forward-looking concerns and frameworks that can be used to guide future research. These research needs are outlined at the end of the review.

Insert Table 1 Here

Collective Turnover in Research and Practice

Background: Turnover Rates in the United States

According to U.S. Bureau of Labor Statistics data, annual total turnover rates fluctuated between 40% and 50% in the decade of the 2000s (U.S. Department of Labor, 2010). Voluntary turnover (quit) rates ranged from 17% to 28%, whereas involuntary turnover rates (including discharges and layoffs) hovered at 16% to 19% (see Figure 2). The remaining 3% to 4% constituted “other” separations for retirement, death, disability, or transfer. Industry-specific Bureau of Labor Statistics data from this period reveal that the highest voluntary turnover rates were in leisure and hospitality (49% to 60%), whereas the lowest were in government (7% to 10%). Involuntary turnover rates were highest in construction (34% to 47%) and lowest in government (5% to 6%). Notably, 2009 data signal the first instance where the involuntary turnover rate surpassed the voluntary turnover rate. In addition, comparing 2001 and 2009 voluntary turnover rates reveals a 39% drop across the period.

Insert Figure 2 Here

Literature Search and Descriptive Summary

We searched multiple electronic databases to identify relevant scholarly articles, using keywords such as *collective turnover*, *turnover rate(s)*, *quit rate(s)*, *discharge rate(s)*, *churn rate(s)*, *group turnover*, *unit turnover*, and *organizational turnover*. In addition, we scanned reference lists and conducted reverse searches of seminal collective turnover papers using the Social Science Citation Index. Articles were examined to ensure relevance to collective rather than individual turnover. In total, 115 articles were retained as source material for the review.

Table 2 provides a descriptive summary of this research. Nearly half (48%) of the articles were published in one of four journals (in descending order of frequency, *Academy of Management Journal*, *Journal of Applied Psychology*, *Industrial Relations*, and *Personnel Psychology*), and most were published recently: 66% (2000s), 19% (1990s), 12% (1980s), and 3% (pre- 1980). These studies focused on collective turnover at the group (11%), unit (37%), or organizational level (52%). Collective turnover has been addressed as an independent (31%), dependent (63%), mediating (3%), moderating (1%), or control (2%) variable. Most studies involve total turnover (43%) or voluntary turnover (46%) rates. Less common are studies of involuntary turnover (11%) or multiple turnover (13%) types. Eleven percent of studies did not provide enough information to determine which type of turnover rate was studied.

Insert Table 2 Here

Regarding turnover rate formulas (details of which are explained later), studies either reported using separation rates (65%) or instability rates (11%) or did not describe the formula used (24%). Turnover rate information was drawn from key respondents (59%) or organizational records (41%). Most often, researchers tracked collective turnover rates for one year (72%), although shorter (21%) and longer (7%) study windows have been used. Single-industry studies were the norm (72%), with the balance of studies (28%) involving multi-industry investigations.

Consideration 1: Collective Turnover Measurement and Levels

Measuring Collective Turnover

Typically, collective turnover is measured as a *turnover rate* by dividing the number of leavers during the period by workforce size. Two formulas are commonly used (Price, 1977). In the formula for *separation rates*, the numerator includes the total number of members who leave at any point during the period. The denominator is the number of members at the beginning, middle, or end of the period or is the average of beginning and ending values. Separation rates have no maximum because turnover among replacements allows the numerator to exceed the denominator, which can lead to turnover rates well in excess of 100%.

Second, in the formula for *instability rates*, the numerator includes the number of beginning members who leave at any point during the period. The denominator includes the total number of beginning members. Only members who are part of the beginning cohort (e.g., all employees who are on the payroll as of January 1) contribute to the numerator and denominator. Stated differently, instability rates express collective turnover as the proportion of the beginning

cohort that leaves by the end of the period. Unlike separation rates, instability rates are capped at 100% because replacement turnover does not enter into the calculation. Some researchers reframe turnover rates in a complementary manner as *retention rates*. Such measures are akin to Price's (1977) formulation of stability rates, which are derived by subtracting instability rates from 100%. This complementariness does not apply as readily to separation rates because the resulting "retention rates" may take on negative values.

Turnover rates can be formulated differently based on individual leaver characteristics. Making no allowances for individual leaver characteristics yields *total turnover rates*. In contrast, *voluntary turnover rates* (or *quit rates*) include in the numerator only those separations that were initiated by employees (e.g., resignations). *Involuntary turnover rates* (or *discharge rates*) include in the numerator only those separations that were initiated by the organization (e.g., dismissals, terminations). Layoffs and reductions in force are sometimes included in the involuntary turnover rate or are calculated separately. The same is true for separations due to death, retirement, lateral transfer, or permanent disability. Finally, different turnover rates can be calculated to capture the performance level or demographics of departing employees and thus better understand exactly who is leaving (e.g., Horn, Roberson, & Ellis, 2008; Shaw, Dineen, Fang, & Vellella, 2009; Shaw & Gupta, 2007).

The above measures can be labeled headcount-based collective turnover rates, as they all hinge upon aggregated quit decisions of individuals, yet researchers have begun to pursue alternative measures. For example, Siebert and Zubanov (2009) reasoned that headcount measures can miss important temporal dynamics (e.g., losing a valuable employee near the end of a period is less damaging than losing the same employee at the beginning), and therefore, they developed a measure based on hours lost to turnover. The hours lost measure better predicted

organizational performance. As another example, Hausknecht and Holwerda (2010) described a number of collective turnover characteristics that are not captured by either separation or instability rates (leaver proficiencies, time dispersion and positional distribution of departures, remaining members' proficiencies) and offered an alternative index that better captures these dynamics. These studies illustrate that researchers need not be bound to classic turnover rate formulas and that the choice of a collective turnover measure is not to be taken lightly, as each approach makes important assumptions about the meaning of the underlying construct.

Collective turnover data typically come from one of two sources: (1) direct calculations from company records or (2) indirect calculations based on reports from a key respondent such as an HR manager. Direct calculations are more common in studies at the group or unit level, whereas indirect calculations are more common in organizational-level research. Additionally, indirect calculations are often the only practically feasible option in multifirm studies.

Turnover and Levels of Analysis

It is well known that constructs, theories, and relationships are not necessarily isomorphic across levels (Chan, 1998; House, Rousseau, & Thomas-Hunt, 1995; Klein, Dansereau, & Hall, 1994; Klein & Kozlowski, 2000). Researchers have cautioned that “measures of an individual-level construct cannot always simply be aggregated and assumed to be a veridical representation of its collective counterpart” (Morgeson & Hofmann, 1999: 260). In individual-level turnover research, the primary focus is the individual's binary decision to quit or stay. Thus, turnover mainly appears as a dependent variable because linking individual decisions to distal collective outcomes can lead to conceptual and empirical misalignment of levels. However, once turnover

is aggregated to higher levels, collective turnover can be linked with variables that do not exist at lower levels (e.g., group size, firm performance) and can be modeled as an independent, dependent, mediating, moderating, or control variable. Ultimately, reframing turnover as a collective construct provides novel opportunities to study context (Johns, 2006) and integrate collective turnover into broader models of firm performance (e.g., Batt, 2002; Huselid, 1995).

Moreover, for conceptual and methodological reasons, relationships that are well established at the individual level will not necessarily hold at higher levels. This is evident in Hulin, Roznowski, and Hachiya's (1985) analysis of the discrepancies across levels in the job opportunities-turnover relationship, as well as in various other individual-level predictor-outcome relationships that can change at the collective level, even reversing sign in some cases (e.g., Dineen, Noe, Shaw, Duffy, & Wiethoff, 2007; Ostroff, 1993; Ostroff & Harrison, 1999). Further, given that we earlier characterized *collective* as pertaining to everything from small teams to large companies, collective turnover effects from one specific level will not necessarily generalize across the entire collective domain. Results for highly interdependent teams, for example, may well not replicate in firm-level studies.

Consideration 2: Consequences of Collective Turnover

Much of the turnover literature—regardless of level—is predicated on the notion that turnover matters because it has meaningful consequences. Collective turnover can lead to undesirable outcomes because it entails the loss of firm-specific human and social capital, disrupts operations and collective function, saddles remaining members with newcomer socialization and training, and increases recruitment and selection costs (Bluedorn, 1982; Dess &

Shaw, 2001; Mobley, 1982; Osterman, 1987; Price, 1977; Staw, 1980). Empirical research generally supports these arguments, as higher turnover rates have been associated with reduced profits (McElroy, Morrow, & Rude, 2001; Morrow & McElroy, 2007; Peterson & Luthans, 2006; Riordan, Vandenberg, & Richardson, 2005), lower sales (Gelade & Ivery, 2003; McElroy et al., 2001; Shaw, Duffy, Johnson, & Lockhart, 2005; Siebert & Zubanov, 2009), lower revenue growth (Baron, Hannan, & Burton, 2001; Batt, 2002), higher accident rates (Shaw, Gupta, & Delery, 2005), longer customer wait times (Kacmar, Andrews, Van Rooy, Steilberg, & Cerrone, 2006; Peterson & Luthans, 2006), inferior service quality (Hausknecht, Trevor, & Howard, 2009), greater counterproductivity (Gelade & Ivery, 2003; Kacmar et al., 2006), and reduced manufacturing efficiency (Shaw, Gupta, et al, 2005). At the same time, relationships are not universally supported, are sometimes contingent upon moderators, and are occasionally sensitive to the inclusion of covariates. Additionally, turnover is argued to have beneficial consequences under certain conditions (Abelson & Baysinger, 1984; Dalton & Todor, 1979; Staw, 1980), and its influence may not be linear (Shaw, Gupta, et al., 2005). We address these issues in later sections of the review.

Firm Performance

Firm performance is a broad concept that includes three general types of organizational outcomes: (a) financial performance (e.g., profits); (b) product market performance (e.g., sales); and (c) shareholder return (Richard, Devinney, Yip, & Johnson, 2009). Numerous researchers have reported negative associations between collective turnover and these consequences (e.g., Batt, 2002; Gelade & Ivery, 2003; Huselid, 1995), with findings emerging across a variety of

settings. For example, Ton and Huckman (2008) found negative relationships between total turnover rates and subsequent store profit margins. Notably, turnover rates were measured three months before profits, providing a design in which turnover was temporally precedent to its outcome. These turnover-profit effects were conditional on a process conformance moderator, were curvilinear, and were sensitive to the turnover aggregation window. McElroy et al. (2001) found negative correlations between three turnover measures (voluntary, involuntary, and reduction in force) and same-year profitability, yet only involuntary turnover remained statistically significant when controlling for size, location, and service mix. Time-lagged relationships were somewhat weaker, as only reduction in force turnover remained negative and statistically significant in both the zero-order and partial correlation analyses. Finally, controlling for other known correlates of profitability, Simons and Hinkin (2001) found a negative relationship between voluntary turnover rates and gross operating profits.

As noted, turnover-firm performance effects are sometimes indirect, curvilinear, and/or moderated by other factors. For example, Kacmar et al. (2006) studied fast-food restaurants and reported indirect negative effects of both crew and manager turnover on sales and profits. Efficiency mediated these relationships such that higher turnover was associated with longer customer wait times, and longer wait times were associated with lower sales and profitability. Morrow and McElroy (2007) also found support for a turnover-efficiency- profits mediated model, suggesting generalizability for this effect. Studying mortgage bank subunits, they reported that higher voluntary turnover rates were associated with increased costs per loan and less efficient loan generation, which in turn were associated with lower profitability. Glebbeek and Bax (2004) generally found negative associations between turnover rates and net result (a measure of gross sales minus labor costs). Controlling for regional differences and several other

factors, the negative effects held across multiple years and for both net result and change in net result. Some evidence of curvilinear relationships was found, suggesting that small amounts of turnover may have beneficial effects. Shaw, Gupta, et al. (2005) reported support for an attenuated negative relationship between voluntary turnover and operating ratios, meaning that the negative effects of turnover became less severe as turnover rates increased.

Mixed or null results have also been reported in several studies. Huselid (1995) related total turnover rates to corporate financial performance and found a negative and statistically significant association between collective turnover and Tobin's q , but no turnover relationship with gross rate of return on assets. Riordan et al. (2005) examined three different measures of insurance company financial performance but found negative turnover rate effects only for return on assets. Shaw and colleagues found no relationship between turnover rates and sales or change in sales (Shaw, Duffy, et al., 2005). In multivariate analyses, Koys (2001) found that total turnover rates did not predict profit after controllable expenses or profit after controllable expenses as a percentage of sales. Van Iddekinge et al. (2009) reported that turnover rates were negatively related to profits against targets, but changes in turnover rates were not associated with changes in profits. Detert, Trevino, Burris, and Andiappan (2007) found that neither management nor crew turnover rates predicted operating profit as a percentage of sales. Several other studies have reported no relationship between collective turnover and profits (Guest, Michie, Conway, & Sheehan, 2003; Ryan, Schmit, & Johnson, 1996; Sacco & Schmitt, 2005; Sels, De Winne, Delmotte, et al., 2006; Sowinski, Fortmann, & Lezotte, 2008; Wiersema & Bird, 1993).

Productivity and Related Outcomes

In general, productivity has been operationalized as *sales per employee* (service settings) or *output per employee* (manufacturing settings). With the recurring caveats that effects are not universal, not always linear, and sometimes mediated or moderated by other factors, empirical findings generally reveal negative turnover-productivity relationships. For example, Shaw, Duffy, et al. (2005) found a negative relationship between total turnover rates and average quarterly sales per employee. Each one-unit increase in turnover was associated with a nearly \$1,500 loss in sales per employee (turnover also moderated the social capital loss-productivity relationship). Turnover's negative relationship with sales per employee and/or output per employee has been supported elsewhere (Arthur, 1994; Huselid, 1995; Sels, De Winne, Maes, et al., 2006; Yanadori & Kato, 2007), although some studies report no relationship (George & Bettenhausen, 1990; Guest et al., 2003; McElroy et al., 2001; Sun, Aryee, & Law, 2007). Two studies report curvilinear turnover-productivity effects. Shaw, Gupta, et al. (2005) linked voluntary turnover rates with revenue per driver and labor hours per ton and found support for an attenuated negative relationship. Siebert and Zubanov (2009) reported a negative linear relationship between full-time total turnover rates and labor productivity but curvilinear and moderated effects when modeling part-time total turnover rates.

Collective turnover has also been related to various forms of *inefficiency* or *counterproductivity*. Given that turnover depletes knowledge, disrupts operations, and reduces overall collective experience, researchers suggest that high churn will manifest in less efficient output, more waste, and a greater likelihood of accidents, theft, and policy violations. Empirical evidence generally supports these rationales. Kacmar et al. (2006) found that crew (but not

managerial) turnover rates were positively related to food waste (although in Detert et al., 2007, neither employee nor management turnover was related to prior or current food loss). Thoms, Wolper, Scott, and Jones (2001) reported a positive relationship between turnover rates and employee theft (operationalized as missing cash, inventory, or equipment). Arthur (1994) found higher scrap rates in high-turnover steel mills (for those operating under a commitment-based HR system). Hatch and Dyer (2004) found higher defect rates in semiconductor fabrication plants with higher turnover. The attenuated negative relationship found by Shaw, Gupta, et al. (2005) concerning productivity outcomes (discussed above) was also evident when linking turnover rates to accident rates and a measure of counterproductivity (i.e., out-of-service percentage, an indicator of violations attributable to driver fault). Higher turnover rates have also been associated with lower unit-level clerical accuracy (Gelade & Ivery, 2003) and higher loan delinquency rates (Ryan et al., 1996).

Costs represent another important productivity-related consequence of collective turnover. Drawing upon their empirical findings, researchers have estimated the dollar value impact of turnover itself and of its impact on organizational performance (Dalton & Todor, 1982; Nishii & Mayer, 2009; Simons & Hinkin, 2001; Ton & Huckman, 2008; Waldman, Kelly, Arora, & Smith, 2004). When multiplied across the units studied, multimillion-dollar calculations of turnover's organizational consequences are not uncommon.

Customer Outcomes

The final category of consequences involves customer-related outcomes such as wait time or perceptions of satisfaction, quality, or service provider performance. As with other consequences, empirical evidence favors negative turnover-customer outcome associations. High turnover has been linked with (a) longer customer wait times in fast-food restaurants (Kacmar et al, 2006; Peterson & Luthans, 2006); (b) less favorable service quality perceptions among casino guests (Hausknecht et al, 2009) and call center customers (Batt & Colvin, in press); (c) lower mystery shopper scores for both retail bookstores (Ton & Huckman, 2008) and fast-food locations (Van Iddekinge et al, 2009); and (d) lower customer satisfaction among patrons of convenience stores (Hurley & Estelami, 2007), bank branches (Gelade & Ivery, 2003; Morrow & McElroy, 2007; Ryan et al, 1996), health care facilities (Plomondon et al., 2007), and automotive services stores (Sowinski et al., 2008). Although the basic pattern is consistent across multiple studies, results are sometimes sensitive to the sample type (hourly vs. managerial); turnover aggregation period; turnover type; and/or presence of control, mediating, or moderating variables (Detert et al., 2007; Hausknecht et al., 2009; Kacmar et al., 2006; Koys, 2001; McElroy et al., 2001; Ton & Huckman, 2008; Van Iddekinge et al., 2009).

Turnover Consequence Characteristics

The magnitude of collective turnover-consequence relationships also depends on the operationalization of performance. Relationships that have been reported in the literature are generally more consistent and higher in magnitude when considering proximal outcome

measures (e.g., efficiency, customer service) as opposed to distal outcomes that are more financially oriented (e.g., sales, profits). One explanation is that while a high rate of departures immediately severs customer relationships and hampers efficiency due to the loss of experienced workers, it takes time before the cycle of customer dissatisfaction and reduced loyalty affects customer spending and eventual profitability. Such a mediated model has been advanced and substantiated empirically in both food service and retail banking contexts (Kacmar et al., 2006; Morrow & McElroy, 2007). Apart from these studies, however, those that involve cross-sectional or short time lag designs seem better able to reveal collective turnover's effects on proximal internal process measures than its effects on distal financial performance. In general, because financial outcomes are determined by a more complex set of factors than are productivity-related constructs, the effect of any single factor such as turnover rates is likely to be more difficult to disentangle from competing influences.

Consideration 3: Curvilinear and Interaction Effects

The main effects described above, as well as those summarized in the fifth consideration section (collective turnover antecedents), are the typical “takeaways” from collective turnover research. Yet, given the importance of context in organizational behavior and, specifically, in the study of turnover, many authors of collective turnover research have investigated curvilinear and interaction effects. Given that curvilinear (i.e., quadratic) effects are essentially a special case of moderation (Edwards & Lambert, 2007), both types of analyses illustrate collective turnover relationships in which the effect of an independent variable is subject to the level of a second variable (itself, in the case of curvilinearity).

Curvilinear Effects

Johns (2006) identified curvilinearity as a frequent signal of context effects because various levels of the predictor variable can constitute unique work contexts that, in turn, produce substantially different effects. Researchers have long asserted that relationships between turnover and consequences may be curvilinear (Abelson & Baysinger, 1984; Dalton & Todor, 1979; Price, 1977). As Shaw, Gupta, et al. (2005) described, the functional form of the curvilinear relationship can take one of two forms, either *inverted U* or *attenuated negative*. The logic underlying the inverted-*U* relationship suggests that some amount of turnover infuses the collective with new ideas, facilitates recruitment of more skilled workers, widens internal promotion opportunities, and reduces entrenched conflict (Staw, 1980). In this sense, avoiding turnover entirely breeds stagnation that hinders organizational performance (Dalton & Todor, 1979). The inverted-*U* pattern suggests that an “optimal” level of turnover exists—one that allows collectives to maximize performance by successfully balancing stagnation with the potential loss of valued human capital that occurs when turnover levels are too high. Empirically, the resulting curve, when plotted, would show a “concave down” relationship such that very low and very high turnover rates are associated with lower performance. The center of the curve would indicate an inflection point (i.e., turnover rate) at which performance is maximized.

In contrast, the logic of the attenuated negative relationship is that the optimal level of turnover is zero and that even small levels of turnover begin to impede organizational performance. While low to moderate levels of turnover have increasingly negative consequences, at some point along the curve, successively higher amounts of turnover largely become inconsequential (Price, 1977). At high levels, continuous replacement of the workforce becomes

routine and steps are taken to minimize its disruption (Shaw, Duffy, et al., 2005). Thus, the attenuated negative relationship suggests that turnover affects performance to a point beyond which higher amounts have little or no impact (i.e., “diminishing damage”; Meier & Hicklin, 2008: 575). The plotted curve appears as a “concave up” relationship whereby a sharply negative curve eventually flattens as turnover rates approach their maximum.

We located seven papers that reported tests of curvilinear relationships involving collective turnover and organizational consequences (Alexander, Bloom, & Nuchols, 1994; Batt & Colvin, in press; Glebbeek & Bax, 2004; Meier & Hicklin, 2008; Shaw, Gupta, et al., 2005; Siebert & Zubanov, 2009; Ton & Huckman, 2008). Given that multiple samples and/or multiple dependent variables were examined in these studies, 18 tests of curvilinear relationships were reported (see Table 3 for a summary). Of the 18 tests, 6 were not statistically significant, 4 supported an inverted- U functional form, and 8 supported an attenuated negative relationship. It is difficult to discern any study-level characteristics that may explain the discrepant findings, as no clear pattern emerges from comparing sample types, turnover types, or dependent variables across studies. However, the findings do suggest that, to date, there is very little evidence of a true inverted- U relationship. Graphing the 4 results supporting the inverted U shows that the curves resemble the right half of an inverted U , which suggests that, while zero turnover is not necessarily ideal, the performance consequences of a zero-turnover rate are not very different from low turnover. The implication is that, unlike the inverted- U conceptualization, zero turnover is not all that damaging (but also that a very small amount of turnover may yield modest performance improvement). The study that most closely resembles a true inverted U is that by Meier and Hicklin (2008), who studied school districts and found that very low levels of teacher turnover were indeed detrimental to school performance. Nevertheless, the conflicting findings

regarding the attenuated negative and inverted-*U* perspectives—which have vastly different implications—suggest that we are not yet able to draw definitive conclusions about optimal levels of employee turnover. In general, however, both of the departures from linearity are relatively gentle and tend to occur in the tails of the collective turnover distribution. Hence, while we encourage nonlinear approaches, our sense also is that a “lower turnover is better” guideline will typically serve both researchers and practitioners well.

Insert Table 3 Here

Within-Study Moderators

While the curvilinearity studies we described all involved collective turnover consequences, interaction effects emerge regularly in both consequences and antecedents research. In terms of moderators of antecedent-turnover relationships, the most striking characteristic is the contingent nature of HR practices. Typically viewed as management’s most accessible instrument in combating turnover, the value of HR practices in this role appears to be context specific. For example, Guthrie (2000) found that the use of group-based pay plans was unrelated to turnover rates for small firms, but the positive relationship became stronger and statistically significant as firm size increased. Yalabik, Chen, Lawler, and Kim (2008) studied voluntary and involuntary turnover rates among East and Southeast Asian companies and found an interaction such that high-performance work systems were negatively related to collective turnover for locally owned companies but positively related to collective turnover for subsidiaries of multinational companies. Illustrating HR’s ability to mitigate unpleasant shocks,

Trevor and Nyberg (2008) reported that, although downsizing led to higher voluntary turnover rates, high levels of HR practices that should enhance procedural justice and foster job embeddedness perceptions reduced downsizing effects by 58% and 61%, respectively. On the other hand, likely due to positive effects on marketability, high levels of HR practices associated with career development *increased* the downsizing effect on turnover rate by 83%. Finally, Shaw and Gupta (2007) found that pay dispersion was negatively related to turnover rates for high performers when communication was high and pay-for-performance was emphasized, but pay dispersion's effect was reversed when communication was high and pay-for-performance was not emphasized. Taken together, the moderated HR effects found across these studies speak to the importance of viewing employee retention as an exercise in contingency planning.

The typical reasoning offered in studies of collective turnover antecedents is that turnover is expensive and results in talent loss, which likely hinders organizational performance, thereby making the understanding of turnover causes (and the subsequent potential to reduce turnover) worthwhile. Thus, the value of studying turnover depends on the extent to which turnover is in fact linked to performance-related consequences. Interactions of collective turnover effects on these outcomes provide a more nuanced understanding of exactly when, and the degree to which, these links exist. Most moderator hypotheses rest on the logic that turnover is less damaging to performance when either (a) the importance of human capital to organizational performance is diminished or (b) factors related to the collective's structure and/or function "buffer" the impact of departures on performance. In the former case, researchers suggest that because human capital is not a primary source of competitive advantage in some organizational contexts, high turnover has little bearing on organizational performance; only when the context requires a stable and skilled workforce does high turnover disrupt operations and impede performance (Arthur, 1994,

Guthrie, 2001; Shaw, Duffy, et al., 2005). By extension, commitment-enhancing HR systems signal that human capital is valuable and worth retaining, and hence, turnover becomes a critical performance determinant. Under control-based systems, typical turnover outcomes—disruption, replacement costs, performance deficits of new hires—are actively managed through job design, workforce planning, and/or technology. High turnover is therefore less consequential because replacements are readily available, can be trained quickly, and/or can be monitored easily.

Researchers have also identified factors thought to buffer (or compound) the negative influence of collective turnover on performance. In contrast to arguments regarding the diminished importance of human capital, these studies generally involve settings in which human capital is critical to organizational success. Hence, the goal of this work is to identify collective characteristics that render some units better (or less) able to defuse the negative effects of high turnover. For example, Hausknecht et al. (2009) found voluntary turnover rates to be more damaging to customer perceptions when unit size was large and newcomer concentration was high. Presumably, both the process inefficiencies associated with larger groups (e.g., motivation and coordination losses) and the depletion of experienced resources with which to manage employee socialization demands compounded the disruptive turnover effects. In contrast, low levels of size and newcomer concentration buffered the turnover-driven disruption. Similarly, Siebert and Zubanov (2009) reported that the retention of part-time employees appeared to insulate against the disruptive effects of full-time turnover on labor productivity by making it easier to find competent replacements for the full-time leavers. Additional research supporting the general buffering argument reveals the mitigation of damaging turnover effects when knowledge is created in organizational routines rather than in people (Ton & Huckman, 2008) and at high levels of shared values among employees (Watrous, Huffman, & Pritchard, 2006).

Consideration 4: Methodological and Conceptual Issues

Aspects of the studies reviewed above, and to some degree all aspects of a review such as this, qualify as methodological and conceptual issues. Several of these issues, however, have yet to be addressed and strike us as particularly meaningful as the collective turnover literature moves forward. We examine these next and then move on to discuss collective turnover antecedents in our final major consideration section.

Sample Considerations

The sample composition varies widely across the studies reviewed. In organizational-level studies, turnover rates have been reported either for the entire organization (presumably collapsing across all job types) or separately for one or more key employee groups. In group- or unit-level studies, turnover rates are often calculated for a specific job level (e.g., hourly, managerial) or job type (e.g., customer-facing) rather than for the entire collective. In some studies, turnover rates have been modeled for multiple employee groups, thus allowing researchers to test whether turnover levels or, perhaps more importantly, their effects, are more pronounced for—or specific to—a given employee group. Results of such investigations yield several important insights: (1) Correlations between turnover rates computed on two different employee groups (e.g., managers vs. crew, full-time vs. part-time) within the same organization reveal either no relationship (Detert et al., 2007) or only a moderate correlation such that shared variance is typically less than 10% (e.g., Kacmar et al., 2006; Ton & Huckman, 2008); (2) relationships between turnover rates and antecedents or consequences are weaker, stronger,

and/or opposite in sign, depending on the employee group under consideration (Kacmar et al., 2006; Terborg & Lee, 1984; Ton & Huckman, 2008; Watrous et al, 2006); and (3) as noted earlier, turnover rates in nonunion settings clearly exceed the rates for unionized employees (e.g., Batt, 2002; Batt, Colvin, & Keefe, 2002; Cappelli & Neumark, 2004), with this difference emerging for various types of turnover rates (Shaw, Delery, Jenkins, & Gupta, 1998; Shaw et al, 2009; Shaw & Gupta, 2007). Taken together, these studies show that collapsing across distinctly different employee groups is often inadvisable when studying turnover rates, as the antecedents and consequences of turnover may differ by group. This work also presents another interesting future research opportunity to understand how, when, and why turnover dynamics differ across samples that are nested within similar or identical work environments.

Turnover Rate Type

Although the most common approach to operationalizing collective turnover is in terms of “total” turnover, theoretical frameworks predicting negative turnover rate effects tend to be grounded in rationale associated with voluntary or dysfunctional (good-performer) turnover. Not all turnover, however, is presumed to have adverse organizational consequences, as is evident in conceptual treatments of involuntary or functional (poor-performer) turnover. Moreover, to the extent that voluntary and involuntary turnover rates differ in terms of their causal explanations for meaningful outcomes, combining the two rates into a total turnover rate may mask any theoretical or empirical inferences that are specific to either of the two turnover types.

Because total turnover rates were used exclusively in 43% of the collective turnover studies that we examined, further investigation of what voluntary and involuntary turnover rates

represent is merited. Assuming that poor performers are labeled as such because they cannot fulfill the basic requirements of the job and can be replaced with workers who are at least average performers (Dalton, Todor, & Krackhardt, 1982), the organization would appear to benefit from this type of employee movement. This theorizing (and the accompanying assumption that involuntary leavers are poor performers) is present in McElroy et al.'s (2001) (unsupported) hypothesis that involuntary turnover rates would be positively related to bank branch performance. Similarly, Koys (2001: 111) used the functional turnover logic to explain failing to find a total turnover effect on customer satisfaction and restaurant profits and suggested that the (unmeasured) negative effect of voluntary turnover may have been weakened by an (unmeasured) positive effect of involuntary turnover. Hence, functional turnover logic from previous research indicates that involuntary turnover rates should be positively related to firm performance, productivity, and customer outcomes.

Despite the presumption that poor performer turnover and involuntary turnover must be functional, however, there is still *no* empirical evidence of involuntary turnover yielding favorable outcomes at the collective level. Indeed, based on two distinct perspectives and contrary to conventional wisdom, there are considerable grounds for expecting negative effects of involuntary turnover rates. First, the operational disruption rationale for voluntary turnover rates is also relevant for considering involuntary turnover rate consequences, albeit to a lesser degree. This perspective is rooted in the employee churn itself, rather than in who leaves. As such, involuntary turnover can erode productivity because an evolving employee base redirects attention from activities that contribute to the production of goods and services. While such erosion of productivity is expected to be greater for voluntary leavers, the employee movement itself, even if associated with less valuable (involuntary) leavers, still suggests that operational

disruption will occur. Moreover, even when poor performers are replaced with average performers, human capital arguments suggest that involuntary turnover rates can pose performance problems under certain conditions. That is, to the extent that turnover outpaces the time to proficiency of new hires, work units may have ongoing performance difficulties, regardless of the potential of those hired as replacements (Arthur, 1994).

The second perspective suggesting a negative relationship between involuntary turnover rates and workforce performance is based on a closer examination of what exactly involuntary turnover rates capture. At the individual level, the functional turnover position mandates that any single poor-performing leaver will tend to be replaced by an average employee (Dalton et al, 1982). Any single departure, however, says little about the entire workforce. Involuntary turnover rates, in contrast, signal the extent to which workforce quality is problematic. Simply put, involuntary (or poor-performer) turnover rates are higher when more employees require termination (or are performing poorly). Additionally, although a single involuntary separation provides an opportunity to replace the poor employee with an average performer, as stipulated in functional turnover logic, at the collective level the replacement of all leavers must be considered. The behavioral distribution of these replacements (i.e., on performance, absenteeism, etc.) should approximate that of the workforce that resulted in a high involuntary turnover rate in the first place. That is, barring substantial change in recruiting or selection strategies, or a shift in the relevant labor market, a work unit that produced high involuntary turnover will tend to, following replacement of all leavers, again be composed of human capital likely to require a relatively high rate of terminations. Consequently, high involuntary turnover rates may partially proxy a dysfunctional workforce. Hence, negative involuntary turnover rate associations with workforce outcomes may have little to do with the employee movement per se (which is the

foundation for the voluntary turnover rate hypothesis) but may instead simply reflect a low-quality workforce and the subsequent poor performance that this group is expected to provide. Importantly, such a workforce could itself be a function of a variety of factors such as labor market constraints and, as described below, inadequate HR management practices.

Modeling and Analysis Considerations

As an indication of low workforce quality, involuntary turnover rates may represent a valuable opportunity for researchers attempting to infer workforce quality and its effects. Currently, limited research has empirically addressed aggregated human capital in organization-level research. However, to the extent that involuntary turnover rates represent low workforce quality, researchers could exploit this measure to address timely questions such as whether HR practices actually do lead to firm-level outcomes via increases in workforce quality. Similarly, controlling for involuntary turnover rate (as a proxy for low workforce quality) could facilitate internal validity inferences about voluntary turnover rate effects by ruling out workforce quality as a competing explanation. Complicating the matter, however, is the fact that involuntary terminations may reflect inadequate attempts to hire competent and honest employees (e.g., for indirect support, see Shaw et al.'s, 1998, finding of a selection ratio- involuntary turnover rate link), train and motivate them, and instill in them trust and commitment. As such, involuntary turnover rates would reflect low workforce quality that is a function of poor management. Any involuntary turnover effects that emerge would likely be confounded with the myriad (unmeasured) ways in which poor management can negatively affect productivity.

A related methodological issue centers on voluntary turnover rates. While involuntary turnover rates likely reflect the loss of low-quality employees on average, voluntary turnover rates do not necessarily reflect the loss of high-quality employees (Dalton, Krackhardt, & Porter, 1981). Identifying leaver rates according to performance level holds considerable promise for research and practice but is also a challenging undertaking. For example, abundant high-performer turnover could mean that the organization, relative to its competitors, is losing better employees, who are then likely to be replaced with average performers, thus hampering organizational performance. On the other hand, the considerable high-performer turnover could instead simply reflect a higher caliber workforce, which bodes very well for organizational performance. One step toward teasing apart this issue is to specify the denominator in performance-specific turnover rate calculations (or the control variable if using number of performance-specific leavers as a predictor) as all potential performance-specific leavers rather than as all potential leavers across the performance spectrum. This requires collecting individual performance data on all employees for all units, making it a high measurement hurdle that has yet to be cleared by researchers.

Causal Direction

Finally, we note that explicit in Figure 1, and implicit in our review, is an assumption about causal direction. Specifically, while stipulating that collective turnover affects such collective consequences as firm performance, productivity, and customer outcomes, to this point we have ignored the possibility that the causal direction might be reversed. Many of the studies we reviewed demonstrated temporal precedence and carefully selected control variables that help

rule out competing influences. Although these studies do not indisputably demonstrate causal effects, the care taken in conducting them and their sheer number support the validity of the causal direction assumption in our figures. So also do four recent studies that report evidence that it is more likely that turnover rates predict performance than the reverse (Glebbeeck & Bax, 2004; Meier & Hicklin, 2008; Siebert & Zubanov, 2009; Ton & Huckman, 2008). Interestingly, however, Van Iddekinge et al. (2009) found evidence supporting reciprocal effects.

While we have relied thus far on contextual explanations for any discrepant findings, an alternative explanation for any study-to-study variation in the work reviewed here is sampling error. Indeed, we caution the reader from necessarily inferring context without carefully considering the possibility of simple random variation across studies. With enough studies, of course, meta-analytic techniques allow for statistical inferences about whether between-study variation actually reflects contextual factors rather than sampling error. This caveat notwithstanding, the considerable variation in results across studies of collective turnover, particularly when consistent with intuitive or theory-based explanations, indicates the critical nature of context in collective turnover research. In short, because it is often responsible for study-to-study variation in organizational behavior (Johns, 2006), greater attention to context is necessary for achieving a more sophisticated understanding of causal relationships involving collective turnover.

Consideration 5: Collective Turnover Antecedents

More often than not, researchers have investigated collective turnover as a dependent variable (63% of studies; see Table 2). Thus, we review key antecedent findings and themes as our final consideration, grouping them into three major categories: (1) HR systems and practices; (2) collective attitudes and perceptions; and (3) collective characteristics (see Figure 1). The figure illustrates that the effects of HR systems and practices and of collective characteristics on collective turnover may be either direct or indirect via collective attitudes and perceptions.

HR Systems and Practices

High-commitment HR systems. Many researchers have examined linkages between the adoption of “high-commitment,” “high-involvement,” or “high-performance” HR management systems and collective turnover. The underlying logic is that combinations of certain HR practices (e.g., selective staffing, incentive pay, extensive training, voice mechanisms) enhances workforce skills, motivation, and empowerment, which leads to higher retention (Wright & Boswell, 2002). In a recent meta-analysis, Combs, Liu, Hall, and Ketchen (2006) summarized data from 23 studies and 6,105 organizations and found a sample-weighted high-performance HR system retention correlation of .12 (and confidence intervals that excluded zero). Various studies—some of which are represented in the meta-analytic estimate—illustrate this basic relationship. Arthur (1994) reported turnover rates that were more than twice as large when steel mills operated under a “control” (as opposed to “commitment”) HR system. Huselid (1995) estimated that turnover rates in organizations with highly developed high-performance HR

practices were 40% lower than in those organizations with virtually no emphasis on HR.

Negative correlations between high-commitment HR systems and collective turnover have been found in studies of call centers (Batt, 2002; Batt & Colvin, in press; Doellgast, 2008), trucking organizations (Shaw, Gupta, et al, 2005), hotels (Sun et al, 2007), and U.S. small businesses (Way, 2002). Support is found when turnover rates are calculated separately for good and poor performers (Shaw et al., 2009) and when non-U.S. firms are studied (East and Southeast Asia: Yalabik et al., 2008; Ireland: Guthrie, Flood, Liu, & MacCurtain, 2009; New Zealand: Guthrie, 2001; United Kingdom: Guest et al., 2003).

Individual HR practices. Dozens of studies investigate the relationship between the use of one or more individual HR practices and collective turnover rates. Although we generally focus on hypothesized effects both here and elsewhere in the review, in the interest of being comprehensive, we also report relationships (e.g., zero-order correlations) that may not have been a primary focus of the original study. Given the volume of research on antecedents, rather than review each study in detail, we seek to capture key findings and emergent themes. For most HR practices, theoretical logic is often consonant with that found at the individual level. That is, HR investments enhance workers' attitudes (satisfaction, commitment), increase feelings of equity or fairness, reduce the attractiveness of alternatives, and/or weaken turnover intentions.

Researchers have reported negative relationships between pay—typically operationalized as either the collective's average pay level or its average pay level relative to the market— and collective turnover (Delery, Gupta, Shaw, Jenkins, & Ganster, 2000; Dittrich & Carrell, 1979; Park, Ofori-Dankwa, & Bishop, 1994; Shaw et al., 1998). Similar findings were reported in two studies of New Zealand firms (Guthrie, 2000, 2001). However, other studies revealed that average and/or relative-to-market pay levels were not related to total (Mueller & Price, 1989),

voluntary (Haines, Jalette, & Larose, 2010; Miller, Horn, & Gomez-Mejia, 2001; Trevor & Nyberg, 2008; Yanadori & Kato, 2007), or involuntary turnover rates (Shaw et al, 1998). Siebert and Zubanov (2009) calculated the average store wage relative to the average county wage for sales assistants and found lower turnover among stores paying above market (but only for full-time and not for part-time employees). Batt et al. (2002) reported lower voluntary turnover rates when average pay levels exceeded the local cost of living. Gray and Phillips (1996) found a negative relationship between relative pay and turnover rates, as did Cappelli and Neumark (2004) when linking wage premiums and voluntary turnover. Thus, although not wholly consistent, evidence supports a negative relationship between pay and collective turnover.

Mixed findings are reported regarding the relationship between incentives (e.g., bonuses, profit sharing) and collective turnover. Incentive system characteristics appear to account for some of these discrepancies; for example, the use of variable pay (Batt et al., 2002) or group-based incentives (Guthrie, 2000; Way, 2002) has been linked with higher turnover rates, whereas the use of skill-based pay has been associated with lower turnover rates (Guthrie, 2000). In some studies, no relationship was found between collective turnover rates and performance-based rewards (Ferratt, Agarwal, Brown, & Moore, 2005; Riordan et al., 2005) or the use of group or individual incentive programs (Haines et al., 2010; Park et al., 1994). In a quasi-experiment with fast-food restaurants, Peterson and Luthans (2006) found that, relative to baseline measures, the introduction of financial incentives was associated with a 13% turnover rate reduction, while restaurants introducing nonfinancial incentives experienced a 10% reduction, and control group restaurants suffered a 5% increase.

Research into the provision of—or level of investment in—*benefits* (e.g., insurance, retirement, paid time off, wellness programs) generally reveals negative associations between

benefits and collective turnover (e.g., Bennett, Blum, Long, & Roman, 1993; Delery et al., 2000; Haines et al., 2010). In some studies, effects applied only to high and/or low performers, varied based on the exact type of benefit, or depended on whether the outcome was voluntary or involuntary turnover (Lee, Hsu, & Lien, 2006; Park et al., 1994; Shaw et al., 1998). Thus, despite general support for the notion that offering benefits to employees may improve retention, it is unclear to this point exactly which types of benefits are most effective at retaining the most valued employees. Future research would help resolve these issues.

Several characteristics of *staffing/selection* systems have been addressed. Regression results from two studies reveal no relationship between staffing selectivity or sophistication and turnover rates (Guthrie, 2000; Shaw et al., 2009). Another study showed that the use of validated selection procedures interacted with selection ratios to predict involuntary turnover rates, suggesting that companies that hired selectively using valid selection procedures had little need to terminate workers (Shaw et al., 1998). Van Iddekinge et al. (2009) found that greater actual use of an established cutoff for selection (based on selection test scores) was generally associated with higher retention rates, but changes in the use of the selection practice over time were not related to changes in retention rates. Researchers have also examined actual staffing levels (e.g., proportion of nurses to hospital beds). Likely because they proxy relative workload, higher turnover rates are found among understaffed units (Bloom, Alexander, & Nuchols, 1992; Gelade & Ivery, 2003). Finally, lower turnover rates have been found in units or firms that rely on internal staffing when filling positions (Gustafson, 2002; Haines et al., 2010).

Another HR practice antecedent concerns available opportunities for *training/development*, which is typically operationalized in terms of key respondent (e.g., HR manager) or workers' reports of the quality and/or amount of training or developmental

assignments provided to employees, or occasionally as the percentage of workers in the unit who have been trained to a given level of competence. With several exceptions (Batt et al., 2002; Hurley & Estelami, 2007), negative relationships between training and collective turnover have been reported (Detert et al, 2007; Ferratt et al., 2005; Gelade & Ivery, 2003; Malos & Campion, 2000; Riordan et al, 2005; Ryan et al., 1996). Further, Van Iddekinge et al. (2009) found that retention rates increased over time as restaurants made greater use of a new-hire training program. On the other hand, studying over 4,000 Canadian workplaces, Haines et al. (2010) found a *positive* relationship between employer-provided training and voluntary turnover rates, concluding that employer investments facilitate worker mobility. This mobility interpretation mirrors Trevor and Nyberg's (2008) explanation for why downsizing leads to higher voluntary turnover rates when companies are high in career development practices. Shaw et al. (1998) also reported a positive relationship between the number of hours of formal training and involuntary turnover rates. As they discussed, high termination rates might signal poor workforce quality, which would place greater demands on the organization to provide additional training.

Studies that relate features of *work design/organization* to collective turnover capture dimensions such as the extent to which the organization uses self-directed teams; allows employee involvement, participation, or discretion; and/or organizes problem-solving groups such as quality circles. In theory, these dimensions provide opportunities for continuous learning and improvement, which should reduce employees' desirability of leaving. Indeed, Batt (2002) found that a work design index (based on team participation and individual discretion factors) was the strongest predictor of call center quit rates relative to other HR practice dimensions. Other results also provide at least some support for an inverse relationship (Batt et al., 2002; Doellgast, 2008; McNulty, Oser, Johnson, Knudsen, & Roman, 2007; Richardson &

Vandenberg, 2005; Ryan et al., 1996). Null effects, however, are reported in a number of studies (Delery et al., 2000; Haines et al., 2010; Hurley & Estelami, 2007; Riordan et al., 2005; Shaw, Gupta, et al., 2005).

Providing opportunities for *voice* has been examined as a potential turnover-reducing mechanism. When conflicts arise, voice mechanisms such as a formal grievance process, ombudsperson, or peer review system provide employees a means to change rather than escape an unsatisfactory situation (Hirschman, 1970). After controlling for unionization, researchers have found negative relationships between the number of employee voice mechanisms and collective turnover (Haines et al., 2010; Spencer, 1986). Two studies reported that procedural justice-enhancing mechanisms such as offering formal grievance procedures were associated with lower voluntary turnover rates, but the effects were no longer statistically significant once unionization was controlled (Delery et al., 2000; Shaw et al., 1998). In a study of nonunion voice mechanisms (dispute resolution procedures, peer review systems), Batt et al. (2002) found that, controlling for unionization, only the presence of peer review procedures was marginally and negatively related to voluntary turnover rates. In contrast, controlling for the presence or absence of nonunion dispute resolution procedures, the actual number of grievances—an indicator of internal conflict levels—was positively related to voluntary turnover rates.

A final HR practice-related antecedent involves *downsizing* or *change*. Batt and colleagues (2002) conducted a large-scale study of telecommunications establishments and found that downsizing was associated with higher voluntary turnover rates, arguing that downsizing reduces job security and demoralizes the workforce. Trevor and Nyberg (2008) studied downsizing effects on voluntary turnover and found that relative to companies that did not downsize, voluntary turnover rates increased by 36% in response to a 2% reduction in workforce

size. Effects dissipated in the presence of HR practices promoting job embeddedness and procedural justice, consistent with the benefits and voice antecedent discussions above. Effects also were partially mediated by aggregated organizational commitment, as the downsizing effect size was reduced by 25% after accounting for commitment. Baron et al. (2001) studied the effects of changing employment models on turnover in a sample of young, high-tech firms. When organizational founders changed their basic approach to employment— theorized as a disruptive and destabilizing event—their firms subsequently experienced higher turnover.

Collective Attitudes and Perceptions

The second major class of antecedents involves collective-level attitudes and perceptions such as aggregated worker views of management/leadership quality, climate/culture, cohesiveness/teamwork, and a host of attitudes that are known predictors of individual-level turnover such as satisfaction, commitment, fairness, and trust. As shown in Figure 1, this class of antecedents may also be viewed as a primary mediator of the HR systems/practices collective turnover relationships summarized above (for a recent example, see Gardner, Wright, & Moynihan, in press). In addition, many of these antecedents could actually serve as collective turnover outcomes (Mueller & Price, 1989; Staw, 1980).

Management/leadership quality. Although conventional wisdom suggests that the manager or boss strongly influences turnover, empirical research suggests a more nuanced and somewhat surprising pattern of relationships. In six studies where collective turnover has been correlated with aspects of supervisor quality, no relationship has been found (Detert et al., 2007; Hausknecht et al., 2009; Kerr, 1947; Ryan et al., 1996; Sellgren, Ekvall, & Tomson, 2007;

Simons & Roberson, 2003). One study supports a positive rather than negative relationship (Hurley & Estelami, 2007). Two studies reveal negative correlations—one between transformational leadership and total turnover rates (Richardson & Vandenberg, 2005), another between leader-member exchange (LMX) and voluntary turnover rates (Nishii & Mayer, 2009)—but these effects did not always remain statistically significant when tested in multivariate models. Finally, three studies support the expected negative relationship. George and Bettenhausen (1990) found a negative relationship between the leader's positive mood (i.e., the extent to which leaders reported feeling active, enthusiastic, and optimistic) and store-level voluntary turnover rates. Fleishman (1998) reported higher group turnover rates for low-consideration/high-structure leaders. Peterson and Luthans (2006) found that increasing managers' performance feedback and social recognition skills through training reduced total turnover rates by 10%. Overall, differences in how supervisory quality is defined and measured across these studies may partially explain the wide range of findings.

Climate/culture. Climate has been indexed as a unitary construct based on aggregated worker perceptions across multiple workplace dimensions (e.g., leadership, communication, resources and support, training, goal clarity). General support for a negative climate-turnover rate relationship has been found (Gelade & Ivery; 2003; Richardson & Vandenberg, 2005; Riordan et al., 2005; Ryan et al, 1996) but is not universal (Sellgren et al, 2007; Sowinski et al., 2008). Further, Terborg and Lee (1984) found lower managerial turnover rates among collectives with supportive climates, but results did not generalize to sales personnel turnover rates, nor did climate predict turnover when modeled as a predictor of future rather than concurrent turnover.

Cohesiveness/teamwork. Despite intuitive appeal, there is limited support for possible turnover-mitigating effects of group cohesiveness or teamwork. George and Bettenhausen (1990)

and Hausknecht et al. (2009) found no relationship between aggregate cohesiveness and voluntary turnover rates. Ryan et al. (1996) reported negative teamwork turnover effects, but results held in only one of two years studied. Future research could look more closely at the underlying group processes (e.g., task interdependencies) that may influence whether and when these effects will be found.

Satisfaction/commitment. In studies linking aggregated job satisfaction and/or organizational commitment to collective turnover, conceptual logic follows from individual-level reasoning. Collectives that, on average, consist of more satisfied and committed members should have lower desirability of movement and, thus, lower turnover rates. Negative relationships between job satisfaction and collective turnover have been found in several studies (Harter, Schmidt, & Hayes, 2002; Hurley & Estelami, 2007; Ryan et al., 1996; Sellgren et al., 2007), although others have reported no support (Dittrich & Carrell, 1979; Koys, 2001; Riordan et al., 2005). Evidence is generally stronger and more consistent for a negative link between aggregated organizational commitment and turnover rates (Angle & Perry, 1981; McNulty et al., 2007; Riordan et al., 2005; Trevor & Nyberg, 2008), perhaps reflecting stronger ties between the target of the attitude (organization vs. job) and the level of the criterion. This prominent role of commitment (vs. satisfaction) is also found when collective attitudes are linked with other unit-level withdrawal constructs such as absenteeism (Hausknecht, Hiller, & Vance, 2008).

Justice/fairness. In addition to organization-level research investigating the effects of justice-enhancing HR practices (discussed above in the section on voice), researchers have examined aggregated worker perceptions of justice or fairness in relation to collective turnover. Although it is plausible that perceived injustice should elicit higher turnover, extant research

reveals no relationship with collective turnover rates (Detert et al., 2007; Dittrich & Carrell, 1979; Simons & Roberson, 2003).

Collective Characteristics

The third category of antecedents contains a broad array of collective characteristics, which we organize into three subcategories: (1) member characteristics, (2) establishment characteristics, and (3) labor market characteristics. As we discuss, many of these variables have been included as control variables rather than as hypothesized turnover antecedents. Thus, certain factors may be thought of as simultaneous covariates rather than as turnover causes.

Member characteristics. Member characteristics include factors such as workforce composition or diversity, size, union status, and member behaviors (absenteeism, organizational citizenship behaviors). In terms of *workforce composition*, negative correlations between turnover rates and average age, average tenure, and percentage male have been found (e.g., Battet et al., 2002; Bennett et al., 1993; Glebbeek & Bax, 2004; Hausknecht et al., 2009; Siebert & Zubanov, 2009; Spell & Blum, 2005; Terborg & Lee, 1984; Trevor & Nyberg, 2008; Wiersema & Bird, 1993; Yanadori & Kato, 2007). Average education and turnover rates tend to correlate positively (e.g., McNulty et al., 2007; Terborg & Lee, 1984), perhaps signaling greater availability of alternatives. Other member characteristics (e.g., average ability, percentage exempt, percentage full-time) are often included as controls to guard against alternative explanations (e.g., Batt et al., 2002; Lee et al., 2006; McNulty et al., 2007; Mueller & Price, 1989; Terborg & Lee, 1984).

Researchers who have investigated the *diversity* of collective membership argue that greater dissimilarity or heterogeneity negatively affects several group processes (e.g., reduced communication, greater conflict) and increases turnover. Empirical evidence generally supports a positive diversity-turnover relationship, but results are sensitive to the diversity characteristic in question. For example, Jackson, Brett, Sessa, Cooper, Julin, and Peyronnin (1991) found higher turnover rates among top management teams that were more diverse in terms of age, completion of a business curriculum, or experience outside the relevant industry, but no relationship when diversity was operationalized as education level, college alma mater, or military experience. Wiersema and Bird (1993) found higher turnover among top management teams of Japanese firms when teams were more diverse in terms of age, team tenure, or university prestige (but not organization tenure). McCain, O'Reilly, and Pfeffer (1983) reported higher voluntary turnover within academic departments that had substantial gaps between the hiring of cohorts or in those that had a dominant older cohort. Pfeffer and O'Reilly (1987) found that tenure heterogeneity among nurses was positively associated with voluntary turnover rates. Alexander, Nuchols, Bloom, and Lee (1995) found curvilinear and interactive relationships between diversity dimensions (tenure, educational preparation, employment status) and voluntary turnover. Finally, Nishii and Mayer (2009) examined relationships between demographic diversity (race, age, gender), tenure diversity, and collective turnover. Demographic diversity was generally associated with higher turnover, but effects were moderated by dimensions of LMX. Tenure diversity main effects were not statistically significant but again were moderated by LMX characteristics.

Nearly half of the studies included in our review controlled for the *size* of the group, unit, or organization. At the organizational level, as firm size increases, so does the likelihood that an

organization can afford sophisticated, turnover-mitigating HR practices (Guthrie, 2001). Organization size may also proxy economies of scale and market visibility (Sun et al., 2007). At the group or unit level, larger size may indicate process inefficiencies such as coordination difficulties and motivation losses (Hausknecht et al., 2009). Size and collective turnover associations vary significantly, ranging between a positive relationship (e.g., Huselid, 1995; Mueller & Price, 1989; Shaw et al., 1998), a negative relationship (e.g., Hausknecht et al., 2009; Spell & Blum, 2005; Terborg & Lee, 1984; Trevor & Nyberg, 2008), and no relationship (e.g., Arthur, 1994; Kacmar et al., 2006; Shaw, Duffy, et al., 2005). Although size controls are common, reasons for its impact are not well understood, and the mixed results reported above are not easily reconciled by considering the opposing rationales that guide predictions at different levels of analysis.

Effects of *union status* on turnover rates are well documented. In unionized environments, lower turnover rates are expected because workers tend to have or receive (a) higher wage rates, (b) seniority-based rewards, (c) access to formal grievance policies, (d) greater job security, and (e) more opportunities to influence policies and procedures (Ashford, Lee, & Bobko, 1989; Batt et al., 2002; Delery et al., 2000; Freeman, 1980; Freeman & Medoff, 1984; Hirschman, 1970). The negative relationship between unionization and collective turnover (generally in the - 20s) has been replicated under a variety of conditions and is among the most robust findings in this literature (e.g., Arthur, 1994; Batt, 2002; Batt & Colvin, in press; Batt et al., 2002; Bennett et al., 1993; Cappelli & Neumark, 2004; Guthrie, 2001; Haines et al., 2010; Huselid, 1995; Park et al., 1994; Shaw et al., 1998; Shaw et al., 2009; Shaw & Gupta, 2007; Shaw, Gupta, et al., 2005; Trevor & Nyberg, 2008; Way, 2002; Yanadori & Kato, 2007). Turnover rates in unionized settings are generally about 5 to 10 percentage points lower than in

nonunion settings (e.g., Batt, 2002; Batt & Colvin, in press; Batt et al., 2002; Cappelli & Neumark, 2004).

We discuss here two additional member characteristics but point out that their conceptual role may change depending on the study context and purpose. Researchers have linked collective-level *organizational citizenship behaviors* (OCBs) with collective turnover, suggesting that high levels of OCBs might enhance group cohesiveness and thus lower turnover (also, following the progression of withdrawal logic, low levels of OCBs may signal that future turnover is imminent; see Chen, Hui, & Seago, 1998). Meta-analytic (Podsakoff, Whiting, Podsakoff, & Blume, 2009) and single-study evidence (George & Bettenhausen, 1990; Richardson & Vandenberg, 2005; Sun et al., 2007) supports a negative relationship between OCBs (or prosocial behavior) and collective turnover. Other work shows that turnover is positively related to rates of *absenteeism* (Dittrich & Carrell, 1979; Glebbeek & Bax, 2004; Richardson & Vandenberg, 2005), suggesting that withdrawal behaviors may follow a pattern of progression or may be susceptible to common causes.

Establishment characteristics. In past studies involving establishments such as retail locations, health care facilities, or restaurants, researchers have regularly controlled for aspects such as size (e.g., square footage, number of hospital beds), quality (e.g., prime or nonprime location, rural or urban location, product assortment), and age (Brannon, Zinn, Mor, & Davis, 2002; Castle & Engberg, 2005, 2006; Donoghue & Castle, 2006, 2007; Harrington & Swan, 2003). In studies linking turnover to productivity, controls for capital and labor inputs are often included (e.g., Siebert & Zubanov, 2009), and in multi-industry studies, researchers often include industry controls based on the guidelines of the North American Industry Classification System or Standard Industrial Classification (e.g., Huselid, 1995; Trevor & Nyberg, 2008). In most

cases, researchers include controls for establishment characteristics to guard against common causes that may explain antecedent-turnover or turnover-consequence relationships or to provide a more complete picture of relevant influences.

Labor market characteristics. Researchers often include a measure of *unemployment rates* because high (low) unemployment signals fewer (greater) employment alternatives and thus lower (higher) turnover. Unemployment rates are controlled because the goal of many studies is to examine collective turnover net these labor market influences. Results provide consistent support for a negative but weak relationship between unemployment rates and turnover rates. Zero-order correlations typically center near $-.10$ and are often at the margin of statistical significance (Alexander et al., 1995; Bennett et al., 1993; Bloom et al., 1992; Gray & Phillips, 1996; Hausknecht et al., 2009; Pfeffer & O'Reilly, 1987; Siebert & Zubanov, 2009; Spencer, 1986; Sun et al., 2007; Terborg & Lee, 1984; Ton & Huckman, 2008). Researchers have also controlled for *labor costs* using indicators such as median household income (Detert et al., 2007), per capita income (Pfeffer & O'Reilly, 1987), starting wage relative to local market (Alexander et al. 1995; Bloom et al., 1992), modal wage (Yanadori & Kato, 2007), or local pay levels (Gray & Phillips, 1996).

Summary and Future Research Needs

Our review clearly indicates that collective turnover is widely regarded as a critical indicator of group, unit, and organizational functioning. As our causal model and five considerations illustrate, collective turnover occupies a prominent role in understanding linkages between HR management practices and distal organizational performance. Empirical work largely substantiates the detrimental effects of collective turnover on productivity, customer outcomes, and firm performance, but these effects are sensitive to a wide range of contextual factors. The within- and between-study differences described above hold substantial promise for understanding how, when, and why antecedent-turnover and turnover-consequence relationships will emerge. Given that turnover has such meaningful consequences, many studies, spanning all levels of analysis, have addressed collective turnover's primary antecedents. These studies confirm that organizations and managers have at their disposal numerous turnover management strategies, as turnover levels—and the ill effects that they often impart—are amenable to influence through HR management practices, collective attitudes and perceptions, and a range of collective characteristics. Despite the amassing literature, however, much remains to be learned about collective turnover and its likely causes and consequences. Drawing from major themes outlined in our review, we offer 10 broad suggestions for future research:

1. Develop collective-level theories of collective turnover.

Much of the collective turnover literature is predicated on individual-level theory and rationale. Examples can be found in studies of both antecedents and consequences, such as when high-commitment HR practices are presumed to reduce collective turnover via enhanced individual employee motivation and when involuntary turnover is assumed to improve collective performance via the displacement of poor performers. Although such reasoning has merit, collective-level theory has been absent from much of the literature reviewed here. Thus, one clear future research need is to develop novel theoretical rationale—at the collective level—for predictions involving collective turnover's antecedents and consequences (see, e.g., Bartunek, Huang, & Walsh, 2008). As noted in the review, the prominence of collective-level constructs (e.g., group size, cohesiveness, task interdependencies, labor market effects, group productivity, etc.) and the multitude of higher level contextual influences strongly suggest that collective turnover research need not (and should not) be constrained to the theoretical foundations that are typically found at the individual level. In the extant work, this is clearly evident in the failure of involuntary turnover rates to produce the functional consequences predicted by individual-level rationale.

2. Clarify collective turnover construct issues.

Although the meaning of collective turnover may appear straightforward, further construct development is warranted. For example, as noted above, the expected functional consequences of involuntary turnover have not materialized empirically, perhaps because the

construct carries different meaning at higher levels. The few available studies of involuntary turnover report negative effects on organizational performance, a finding that runs counter to the functionality hypothesis but is consistent with collective-level operational disruption arguments. Thus, researchers should strive to clarify the construct validity of different turnover types, which will in turn facilitate a better understanding of their antecedents and consequences (this endeavor will involve the pursuit of collective-level turnover theory as well). Such investigations are rare, as only 11% of the studies reviewed here included a measure of involuntary turnover and only 13% included more than one turnover type in the same study. To this end, although undifferentiated measures of collective turnover (“total” turnover rates) conceal underlying processes, their use is not entirely discouraged in future research, as researchers are often limited by the data available to them. At a minimum, the type of turnover that is being studied should be clearly specified, as we could not locate this basic information in 11 % of the studies reviewed.

3. Address process mechanisms.

Conceptual and empirical investigations are also needed to clarify the mediators of antecedent-turnover and turnover-consequence relationships. Many authors have speculated that collective turnover has numerous impacts—arguing that it damages morale, redefines remaining members’ roles, depletes collective experience, reduces entrenched conflict, increases socialization demands, hampers communication—but such processes are rarely, if ever, actually measured. Investigating the operative processes would help clarify how and why different collective turnover types are related to particular antecedents and consequences. Moreover, it would preclude assuming that turnover can have effects only via individual processes.

4. Study collective turnover in a longitudinal context.

Although it is conventional to maintain that longitudinal investigations are needed, the temporal dynamics of collective turnover truly have received almost no attention. More common is aggregating individual turnover behaviors across a one-year period (72% of studies) and relating the resulting turnover rates to antecedents and/or outcomes (either concurrently or using a time-lagged design). However, closer study of temporal dynamics is warranted, both in terms of how the collective turnover construct develops and how it might influence (or be influenced by) other factors. Proper understanding of cause-effect timing is obviously central to detecting causal relationships, should they exist (Mitchell & James, 2001), and would shed light on how long it takes, for example, before high turnover erodes financial performance. A related temporal issue concerns the dynamism of the turnover construct itself. Research indicates that period-to-period correlations of turnover rates range between .08 and .61 (see Koys, 2001; Morrow & McElroy, 2007; Terborg & Lee, 1984), suggesting substantial rank-order change in collective turnover rates between periods. Studies that examine the within-collective temporal patterning of turnover would allow for stronger tests of the factors that influence a collective's turnover rate over time. Such studies would also bolster causal inferences, as the stable aspects contributing to turnover (e.g., a certain pay-level strategy, an absenteeism control policy) could be isolated from dynamic influences that are responsible for a sudden turnover change (e.g., change in leadership, economic fluctuations, HR interventions).

5. Examine the potential for positive consequences of collective turnover.

Although many studies document collective turnover's negative effects, few have set out to examine its potential benefits. This research need was noted 30 years ago (Staw, 1980), and it remains today. Potential positive consequences of turnover include greater innovation, increased adaption and flexibility, reduced worker conflict, greater promotional opportunities, heightened morale, better role performance, accelerated career growth, greater interfirm cooperation, reduced labor costs, and better long-term economic growth (Bluedorn, 1982; Dalton & Todor, 1979, 1982; Muchinsky & Morrow, 1980; Staw, 1980). As Dalton and Todor (1979) noted, ignoring the potential benefits of turnover contributes to biased conclusions that turnover only has negative consequences. Moreover, to the extent that any negative effects are offset by unmeasured positive effects, researchers will observe no relationship, a finding that was not uncommon in our review. Thus, the precision of future research will be strengthened by addressing positive and negative consequences of collective turnover, ideally in the same study, so that a balanced assessment of turnover's consequences can be made. Given the extant work, and until such research is conducted, the very existence of positive effects of collective turnover remains an open question.

6. Continue to evaluate turnover-performance curvilinearity.

Despite longstanding arguments that organizations possess an optimal turnover rate, research evidence is mixed. Several studies reported no curvilinear relationship, whereas others provided at least some support for either inverted-*U* or attenuated negative effects. Additional

research is needed, particularly given that each pattern has substantially different conceptual and practical implications. We also encourage researchers to report results of both linear and curvilinear tests, even if this is not a central focus of the study. Had this been common practice in the past several decades, more definitive conclusions may have emerged beyond the articles discussed here. Further, although it is not always acknowledged, applying transformations to turnover rates prior to analysis essentially yields a nonlinear test. Results should be reported and discussed accordingly in these instances (see, e.g., the raw turnover rate figure constructed from a logged turnover rate model by Trevor and Nyberg, 2008: 269).

7. Explore alternative measurement strategies.

Collective turnover measures were developed many decades ago, long before multilevel theory gained momentum. These formulations have taken us far, yet the opportunity remains to develop alternative measures that are better aligned with the construct's conceptual domain. Although separation rates were used in 65% of the studies reviewed here, they do not capture valuable information regarding the timing of leavers, the proficiencies of remaining members, or the distribution of leavers across positions (Hausknecht & Holwerda, 2010). Instability rates are similarly deficient and also do not capture turnover among replacements. These factors may not be as critical when the researchers' focus is on capturing leaver quantities or cohort stability, but given the theoretical advancements that have emerged since these formulas were developed, alternative measures may be preferred (e.g., Siebert & Zubanov, 2009). At a minimum, we strongly encourage researchers to report how collective turnover was measured, as almost a quarter of the studies included in our review did not report this information.

8. Document boundary conditions.

As we have discussed, the study of moderators identifies boundary conditions for the relationships between collective turnover and its antecedents and consequences. This work should continue, as there is much to learn about why some organizations or units operate productively in the face of high turnover, whereas in others, turnover is much more destabilizing. For example, there is a rich history of collective turnover research in some industries (e.g., health care, hospitality, restaurants), but research should extend into other domains. We also encourage the study of a broader array of job types. Given the relatively small correlations between different job group and/or job-level turnover rates—and the different patterns of relationships with antecedents and consequences—it is clear that collective turnover dynamics can differ considerably even within the same organization. Finally, it is interesting to note that just 11% of the studies reviewed addressed collective turnover at the group level. Given that the causes and consequences of turnover may differ at the group, unit, and organizational levels, additional attention to group-level turnover processes would be valuable.

9. Continue to address leaver characteristics.

Although it has long been recognized that turnover should matter more (or less) depending on exactly who leaves, leaver characteristics are not routinely addressed in collective turnover research. Because, as we have shown, antecedent and consequence relationships with turnover can differ substantially across values of these leaver characteristics (e.g., voluntariness, job performance, job level and type, union status), the characteristics are often important

determinants (i.e., moderators, boundary conditions) of collective turnover inferences. Hence, differentiating turnover according to meaningful leaver characteristics remains an important research need (while adjusting turnover rate denominators accordingly, as described earlier with regard to performance-specific turnover rate calculation).

10. Study collective turnover interventions.

Future research aimed at understanding the effects of collective turnover interventions (e.g., implementing a certain HR practice) would be useful, as only a few studies have explicitly adopted this approach (e.g., Peterson & Luthans, 2006). Although presenting utility-type analyses is informative (e.g., reporting turnover rate differences between the top and bottom quartile on a given antecedent), actually raising the standing of the poor-performing units on a given antecedent and documenting the associated reduction in turnover rates is another matter. It is well known that many organizations, concerned about retaining top talent, take steps to retain valued employees; whether these interventions work as intended remains relatively unknown.

Conclusion

Above all, our aim was to summarize the current state of the collective turnover literature. Organizing the review around five main considerations and a causal framework, we discussed key issues concerning collective turnover measurement and levels, consequences, curvilinearity and interaction effects, methodological and conceptual issues, and antecedents. As the review reveals, much has been learned about collective turnover, including the recognition of a number of pressing research needs that, when addressed, will continue to move this area forward.

Figure 1

Figure 1
Collective Turnover Framework

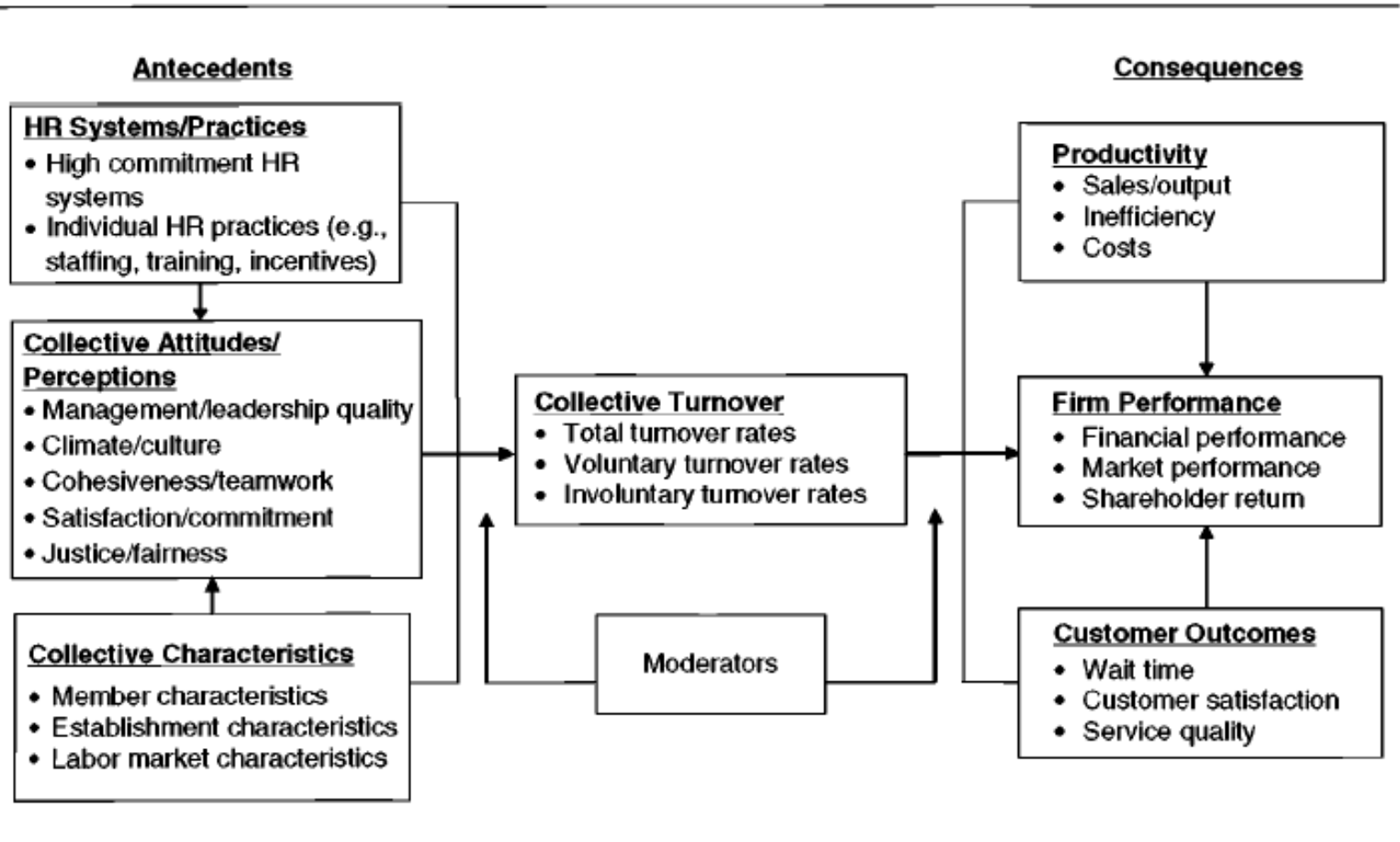


Figure 2

Figure 2
Turnover as a Percentage of Total U.S. Employment 2001–2009

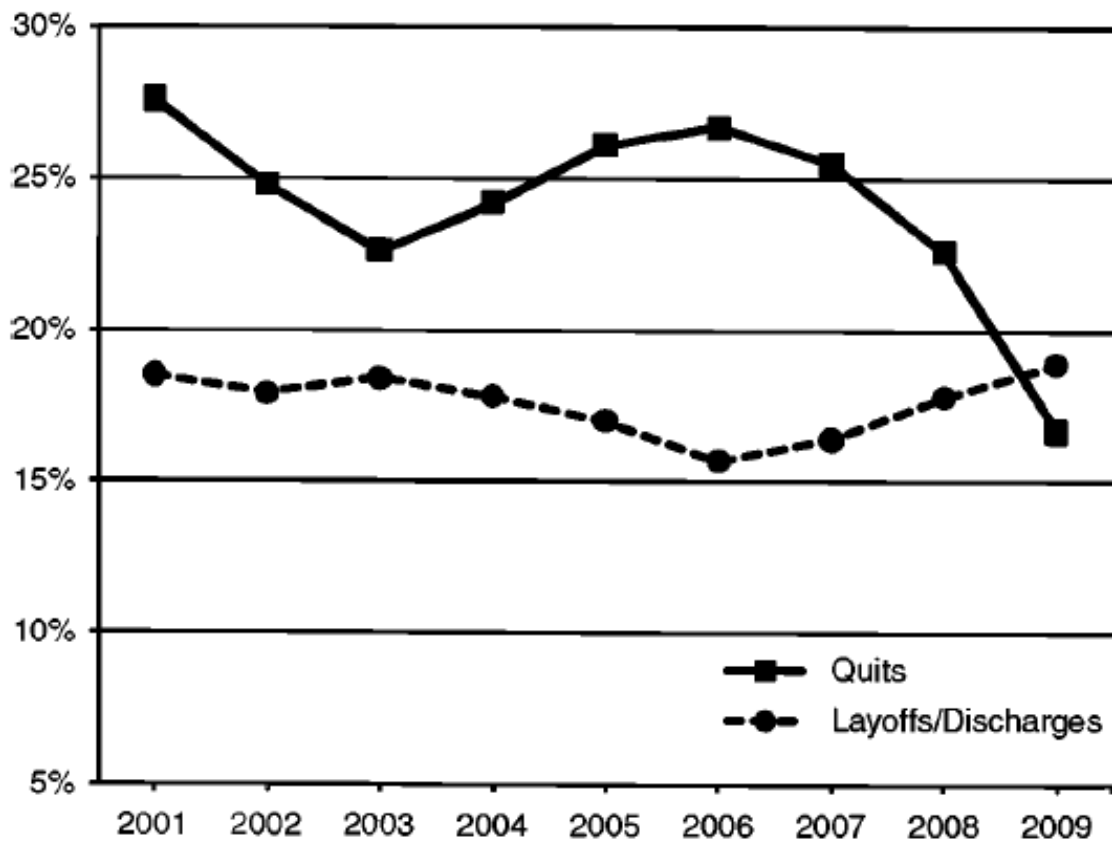


Table 1

Table 1
Major Considerations in Collective Turnover Research

Consideration	Key Points
1. Collective turnover measurement and levels	<p>Collective turnover is measured using a range of formulas.</p> <p>Opportunities remain to strengthen collective turnover measurement.</p> <p>Collective turnover and individual turnover are not necessarily isomorphic.</p>
2. Consequences of collective turnover	<p>Negative relationships with performance outcomes are widely documented.</p> <p>Relationships are stronger and more consistent for proximal rather than distal outcomes.</p> <p>Productivity mediates the effects of collective turnover on financial performance.</p>
3. Curvilinear and interaction effects	<p>Evidence is mixed regarding whether the turnover–performance relationship is linear, inverted <i>U</i>, or attenuated negative.</p> <p>Almost no empirical evidence supports a true inverted-<i>U</i> relationship.</p> <p>Certain factors buffer turnover effects on performance or diminish the importance of human capital.</p>
4. Methodological and conceptual issues	<p>Turnover and its antecedents and consequences differ within organizations based on job group or level.</p> <p>Involuntary turnover dynamics are not well understood (no evidence of functional consequences).</p> <p>Expected causal direction (turnover affects performance) is generally supported.</p>
5. Collective turnover antecedents	<p>Use of high-commitment human resource systems is associated with lower collective turnover.</p> <p>Certain collective attitudes and perceptions (e.g., commitment, climate) are negatively related to collective turnover.</p> <p>Numerous collective characteristics predict collective turnover (e.g., union status, diversity, unemployment rates).</p>

Table 2

Table 2
Descriptive Summary of Collective Turnover Research

Study Characteristic	Frequency (%)
Level of analysis	
Group	11
Unit	37
Organization	52
Turnover role	
Independent variable	31
Dependent variable	63
Mediator	3
Moderator	1
Control	2
Turnover type ^a	
Total	43
Voluntary	46
Involuntary	11
Multiple	13
Cannot determine	11
Turnover measure	
Separation rate	65
Instability rate	11
Cannot determine	24
Data collection method	
Organizational records	41
Key respondent	59
Measurement period	
Less than 1 year	21
1 year	72
More than 1 year	7
Publication outlet	
<i>Academy of Management Journal</i>	27
<i>Journal of Applied Psychology</i>	11
<i>Industrial Relations</i>	6
<i>Personnel Psychology</i>	4
Other	52
Publication year	
2000-2010	66
1990-1999	19
1980-1989	12
Pre-1980	3
Industry	
Education and health services	23
Trade/transportation/utilities	19
Leisure/hospitality	13
Manufacturing	7
Other	11
Multiple	28

a. Percentage total exceeds 100% because individual studies may appear in multiple categories.

Table 3

Table 3
Studies Examining Curvilinear Turnover–Consequence Relationships

Study	Sample	Predictor	Consequence	Significant Curvilinear Effects?	Functional Form
Alexander, Bloom, & Nuchols (1994)	333 hospitals	Total turnover	Personnel operating costs	Yes	Attenuated negative
		Total turnover	Nonpersonnel operating costs	No	–
Batt & Colvin (in press) Glebbeeck & Bax (2004)	339 call centers 110 temporary job agency offices	Total turnover	Customer satisfaction	No	–
		Total turnover	Net result (1995–1998)	No	–
		Total turnover	Net result (1997–1998)	Yes	Inverted <i>U</i>
		Total turnover	Change in net result (1996–1998)	No	–
Meier & Hicklin (2008)	Several hundred school districts	Total turnover	Change in net result (1997–1998)	Yes	Inverted <i>U</i>
		Total turnover	School performance (low task difficulty)	No	–
		Total turnover	School performance (high task difficulty)	Yes	Inverted <i>U</i>
Shaw, Gupta, & Delery (2005) Study 1	110 concrete pipe production facilities	Voluntary turnover	Labor hours per ton	Yes	Attenuated negative
Shaw, Gupta, & Delery (2005) Study 2	299 trucking companies	Voluntary turnover	Accident rate	Yes	Attenuated negative
		Voluntary turnover	Revenue per driver	Yes	Attenuated negative
		Voluntary turnover	Accident frequency ratio	Yes	Attenuated negative
Siebert & Zubanov (2009)	325 retail stores	Voluntary turnover	Out-of-service percentage	Yes	Attenuated negative
		Total turnover (full-time employees)	Labor productivity	No	–
		Total turnover (part-time employees)	Labor productivity	Yes	Inverted <i>U</i>
Ton & Huckman (2008)	268 retail stores	Total turnover	Customer service	Yes	Attenuated negative
		Total turnover	Profit margin	Yes	Attenuated negative

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