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Jason D. Shaw

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What is This?

Turnover rates and organizational performance: Review, critique, and research agenda

Jason D. Shaw
University of Minnesota

Abstract
The author of this article reviews the burgeoning literature on turnover rates and dimensions of organizational performance, and concludes that substantial evidence indicates that turnover rates have negative implications for several dimensions of organizational performance (e.g., safety, productivity, and monetary), that the content of turnover rates plays a role in the magnitude and form of the relationship between turnover rates and organizational performance, and that turnover rates affect distal measures (e.g., profitability, financial performance) through decreased productivity and losses in human and social capital. A roadmap is provided for future theory-building and empirical work in this area.

Researchers are continually fascinated with understanding individual turnover decisions in organizations. Major reviews and a surfeit of literature on individual-level turnover issues appear regularly (e.g., Holtom, Mitchell, Lee, & Eberly, 2008), but the literature is so voluminous that even "reviews of the literature reviews" join the mix (e.g., Price, 1989). The turnover literature at the organizational level is much less well developed, but has increased dramatically in recent years with new theories (e.g., Dess & Shaw, 2001) and a wave of empirical testing of key relationships with turnover rates (e.g., Alexander, Bloom, & Nuchols,

Corresponding author:
Jason D. Shaw, Carlson School of Management, University of Minnesota, 321 19th Avenue South, Minneapolis, MN 55455, USA.
Email: shawx218@umn.edu

1994; Arthur, 1994; Glebbeek & Bax, 2004; Guthrie, 2001; Hausknecht, Trevor, & Howard, 2009; Kacmar, Andrews, van Rooy, Steilberg, & Cerrone, 2006; McElroy, Morrow, & Rude, 2001; Shaw, Delery, Jenkins, & Gupta, 1998; Shaw, Duffy, Johnson, & Lockhart, 2005; Shaw, Gupta, & Delery, 2005; Shaw, Kim, & Park, 2009; Siebert & Zubanov, 2009; Takeuchi, Lepak, Wang, Shaw, & Takeuchi, 2009; Ton & Huckman, 2008; Way, 2002).

Perhaps the most rapidly growing and arguably the most important area of knowledge development concerns the relationship between turnover rates and dimensions of organizational performance. Many roots of this literature are found in organizational psychology, but studies on this relationship are also found in economics, sociology, medical fields, and human resource management. The literature is clearly divided among alternative views of the turnover–organizational performance relationship, including the human-capital and organizational-disruption-based linear negative and attenuated negative perspectives, and the commonly accepted inverted-U-based formulation. Each view has established a foothold in the literature. As I report below, however, some of these views are better supported than others. These areas of theorizing have existed in parallel, and few researchers have attempted to understand the underlying level of support for each approach, to understand the boundary conditions of each theory, or to integrate them (but see Shaw, Gupta, & Delery, 2005, for a rare comparative analysis). I suggest here that it is time to take stock of this literature, to evaluate the alternative views of the turnover–organizational performance relationship, and to assess the level of support for each view. In addition, I examine the moderators of the relationship between turnover rates and organizational performance and outline an agenda for future research in this area.

This paper is designed to be a representative but not exhaustive literature review. I generally exclude studies that include turnover rates as a proximal dimension of organizational performance, but make no predictions or attempts to understand the focal relationship (e.g., Chow, Huang, & Liu, 2008; Detert, Trevino, Burris, & Andiappan, 2007) and focus on the relationship between voluntary turnover and organizational performance rather than discharge or fire rates (Shaw, Gupta, & Delery, 2005). As will be apparent, however, the literature is beset by measures of *total* turnover rates (voluntary and involuntary) and thus it is impossible in this review to completely separate the effects. I broadly view organizational performance to include proximal measures such as productivity, safety, and customer service and distal measures of financial or accounting performance.

This paper is organized as follows. I (a) look at the history of the turnover rates and organizational performance relationship, (b) describe the three prevailing direct effect views and evaluate the empirical evidence for each, (c) examine empirical evidence concerning moderators of the relationship, and (d) set an agenda for future research by outlining causal sequences and highlighting methodological shortcomings that hinder our current understanding (see Figure 1 which depicts the structure of this review).

History: The costs of turnover

The first forays into examining consequences of turnover tended to focus on detailing the costs of turnover (see Hom and Griffeth, 1995, for a thorough review of this literature) or related perspectives based in utility analysis of turnover rates (e.g., Boudreau & Berger, 1985). Under this approach, early researchers attempted to isolate the precise costs of separation including those associated with exit interviews, advertising, recruitment, new-hire training, and general administrative burdens (e.g., Hall, 1981; Smith & Watkins, 1978). Not only have private and public business organizations accepted these approaches well, but they have also played a role in
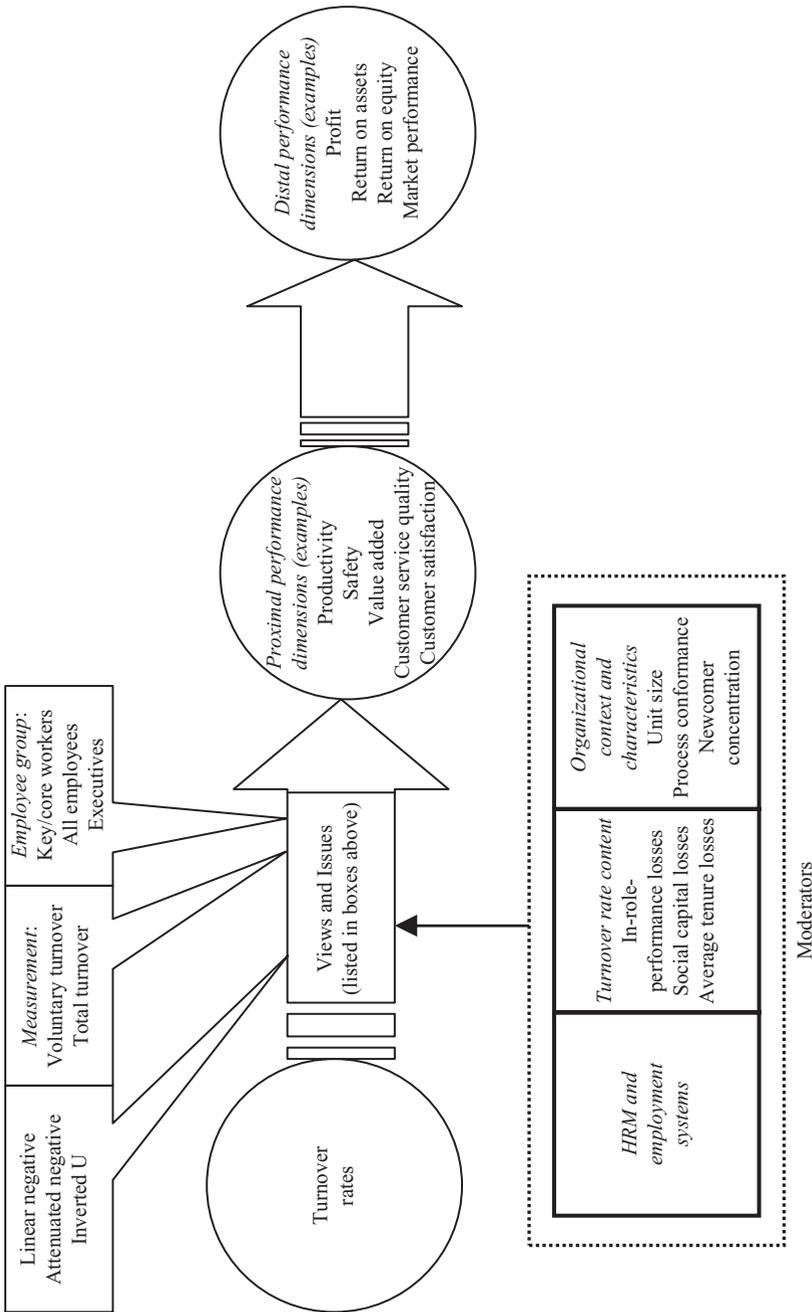
Figure 1. Summary of the causal sequence, views, issues, and hypothesized moderators in the turnover rates and organizational performance literature.

assessments of turnover costs in government (e.g., Cascio, 1981; Lewis, 1991). This approach to costing turnover is perhaps most widely found in the literature on nurse turnover (e.g., Jones, 1990a, 1990b, 2004, 2005, 2008; O'Brien-Pallas et al., 2006), where rampant turnover rates have plagued health care organizations in the United States, Europe, and elsewhere. In a series of papers, Jones developed the nursing turnover cost calculation methodology (NTCCM) that includes a variety of pre and post hire costs.

While informative, these studies and others under this line of research (e.g., Waldman, Kelly, Sanjeev, & Smith, 2004; Wise, 1990) are hampered by small samples and the somewhat idiosyncratic nature of costs across regions, countries, and industries. That is, although the logic of cost-based perspectives is straightforward, and it is difficult to argue that turnover confers no costs, an open question remains as to whether turnover rates driving these costs reduce productivity (costs being only a part of the calculation) or lower organizational financial performance. Tellingly, to my knowledge the only large-scale, cross-organization study of the relationship between turnover rates and solely cost-related and administrative outcomes is Kasarda's (1973) nearly 40-year-old study of schools in Colorado. He found that teacher turnover rates related positively to administrative intensity, defined as the proportion of school employees assigned to administrative duties, administrative overhead, and the proportion of operating expenditures allocated to general regulation, coordination, and control functions. Thus, we can reasonably conclude that costs increase with turnover rates, based on cost-based logic, accounting-based case studies (e.g., Cascio, 1981; Jones, 1990b, 2005), and Kasarda's (1973) study, but this literature stream fails to "empirically demonstrate a relationship between turnover, productivity, and effectiveness" (Price, 1977, p. 115).

Views of the turnover rates–organizational performance relationship linear negative: The human capital loss view

Perhaps dominating the economics-based perspective is the theoretical view that a linear and negative relationship exists between turnover rates and organizational performance. Human capital theory perceives that the workforce's accumulated, firm-specific human capital determines performance (Strober, 1990). Under this view, new employees bear initial costs because they accept wages below their marginal revenue product hoping to recoup their losses with higher future wages, but lose that possibility with voluntary turnover (Osterman, 1987). From the organization's perspective, turnover depletes these human capital stores; replacement employees cannot perform as well as departing job incumbents. As turnover rates rise, organizational performance declines.

The linear negative view can also be supported by arguments from organizational psychology and sociology concerning organizational disruption, interference and distraction, and pool of human capital depletion effects. Higher levels of voluntary turnover rates are disrupting and may interfere with a workforce's performance—arguments reflected in Katz and Kahn's (1978) and Staw's (1980) early writings on turnover consequences. High turnover levels disrupt organizational systems designed to be stable, and this interference "causes organizations to expend potentially more energy in maintaining the input/throughput/output process than they take in from the environment" (Alexander et al., 1994, p. 507). Related sociological arguments suggest that high turnover levels signal that the organization is out of control (Price, 1977). Under such circumstances, organizations must choose where to direct limited attention and resources. They may focus on regaining control, resulting "in a diversion of resources from basic production into controlling the workforce, which is likely to lower performance" (Alexander et al., 1994). Or they may focus all their energies on maintaining

production or service schedules, directing attention away from safety and maintenance concerns and ultimately lowering performance by increasing accidents, injuries, and other failures (Staw, 1980).

Empirical evidence. In a review of the literature current at that time, Osterman (1987) concluded the literature had an ''uncomfortably equivocal quality'' (p. 314), a conclusion based largely on individual-level models from economics and to a lesser degree on organizational-level studies such as Medoff et al.'s (e.g., Freeman & Medoff, 1984) work on unions and productivity. The review pointed to Brown and Medoff's (1978) finding that a 10% quit rate reduction was associated with a 1% increase in productivity as perhaps the most compelling evidence that turnover and organizational performance were negatively related. As summarized in Table 1, the literature has grown dramatically in the past 20 years, especially in tests of the relationship between turnover rates and organizational performance, with analyses of dimensions of workforce productivity growing the most. The table shows investigations that include a test of the relationship between turnover rates, a description of the samples and the levels of analysis, the predicted relationship between the key variables, and a summary of the findings. Evidence accumulated to date indicates that the literature mostly supports the linear negative view. The last column in the table, however, includes information about whether the study reported tests of the curvilinear relationship between turnover and performance and, if so, what the findings revealed about nonlinear tests. Importantly, many studies find support for a linear negative relationship, but conclusions about support for other possible relationships should include a caveat when they fail to address nonlinearity.

Several of these studies addressed the relationship between turnover rates and productivity-related dimensions, and some also addressed the mediating role of productivity and efficiency between turnover rates and more

distal measures of profitability or financial performance. Kacmar et al. (2006) provided a strong example showing that crew and management turnover rates in units of a popular fast-food chain related not only to key dimensions of workforce productivity (e.g., customer wait times and food waste), but also indirectly affected unit profitability. Using total turnover rates (quits and discharges) and organizational performance data, they found that (a) both forms of turnover rates (crew and management) were associated with longer wait times, (b) crew turnover was associated with more food waste, and (c) turnover through increased wait times significantly and indirectly affected store sales and profits.

In a similar study of mortgage banking units, Morrow and McElroy (2007) argued that voluntary turnover rates were associated with lower productivity and efficiency, which in turn indirectly led to distal measures of organizational performance (customer satisfaction and profit). Their findings, with a cleaner measure of voluntary turnover than the Kacmar et al.'s (2006) study, revealed that voluntary turnover rates related negatively to customer satisfaction measures and profit, and further, that two productivity measures mediated the distal effects.

Several other papers report partial tests of this general model, with the largest concentration of studies and perhaps the strongest evidence residing in the retail and customer service contexts (see also Koslowksy & Locke, 1989; Koys, 2001; McElroy et al., 2001, for weaker findings). Van Iddekinge et al. (2009) estimated a larger model of the effects of selection and training practices on retention and profits among a large sample of fast-food restaurants, and found that retention rates (an approximation for the inverse of total turnover rates) significantly and positively affected the change in unit profitability over time. Importantly, their analyses over six time periods allowed stronger conclusions about the causal direction of the turnover rates–organizational performance relationship than we find in typical studies.

Table 1. Summary of empirical studies examining the relationship between turnover rates and organizational performance

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
Alexander, Bloom, and Nuchols (1994)	Community hospitals	Nurses	Organization	Total	Linear negative, inverted U	Personnel costs/patient day	Linear negative (sign reversed)	Yes (attenuated negative, p < .10)
						Nonpersonnel operating costs/patient day	Linear negative (sign reversed)	Yes (not significant)
Arthur (1994)	Steel minimills	Production and maintenance employees	Facility	Total	Linear negative, moderated by HRM	Labor hours per ton	Not significant	No
Baron, Hannan, and Burton (2001)	High technology start-ups	All employees	Organizational	Total	Linear negative	Scrap rate	Not significant	No
						Change in revenue	Linear negative[2]	No
Batt (2002)	Call centers	Customer service and sales representatives	Facility	Voluntary	Linear negative	Sales growth	Linear negative	No
Beadles, Lowery, Petty, and Ezell (2000)	Retail stores	Sales employees	Unit	Total functional	Linear negative	Sales growth	Linear negative	No
Cannella and Hambrick (1993)	Recently acquired firms	Executives	Organization	Senior position (e.g., CEO, president)	Linear positive	Sales growth	Linear positive	No
					Linear negative	Return on equity	Linear negative	No
				Less senior position	Linear negative (but weaker than senior-position turnover)	Return on equity	Linear negative	No
						Return on equity	Not significant	No
Dolton and Newson (2003)	Primary schools	Teachers	Facility	Total	Not specified	Student SAT scores	Linear negative	No

(continued)

Table 1. (continued)

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
Glebbeek and Bax (2004)	Temporary employment agency	Professional staff	Unit	Total	Inverted U	Sales minus wage costs	Inverted U	Yes (inverted U)
						Change in sales minus wage costs	Inverted U	Yes (inverted U)
Guthrie (2001)	Cross-industry	All employees	Organizational	Total	Linear, moderated by HRM	Sales per employee	Not significant	No
Hausknecht, Trevor, and Howard (2009)	Leisure and hospitality	All employees	Unit	Voluntary	Linear negative, moderated by unit size, cohesiveness, and newcomer concentration	Customer service quality	Linear negative	No
Huselid (1995)	Cross-industry	All employees	Organizational	Total	Linear	Sales per employee	Linear negative	No
						Tobin q (market value divided by replacement costs)	Linear negative	No
						Gross rate of return on capital	Not significant	No
Ilmakunnas, Maliranta, and Vainiomäki (2005)	Manufacturing	All employees	Facility	Total	Inverted U	Productivity growth	Inverted U	Yes (inverted U)
Kacmar, Andrews, van Rooy, Steilberg, and Cerrone (2006)	Restaurants	Crew	Unit	Total	Linear negative	Customer wait time	Linear negative (sign reversed)	No
						Food waste	Linear negative (sign reversed)	No
						Sales	Linear negative (bivariate)	No
						Profit	Linear negative (bivariate)	No

(continued)

Table 1. (continued)

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
		Management				Customer wait time	Linear negative (sign reversed)	No
						Food waste	Not significant	No
						Sales	Not significant (bivariate)	No
						Profit	Linear negative (bivariate)	No
Keck (1997)	Cement companies	Executives	Organizational	Total	Linear negative, moderated by environmental stability	Return on assets growth	Linear positive in turbulent years, linear negative in stable years	No
	Minicomputer industry					Return on assets growth	Not significant	No
Kesner and Dalton (1994)	Cross industry	Top management team	Organization	Total	Inverted U	Return on assets trend	Not significant	Yes (not significant)
Koslowsky and Locke (1989)	Retail stores	Sales employees	Unit	Total	Linear negative	Profit %	Not significant	No
						Sales per square foot	Not significant	No
						Merchandise theft and loss	Not significant	No
Koys (2001)	Restaurants	All employees	Unit	Total	Linear negative	Profit	Not significant	No
						Profit divided by total sales	Not significant	No
						Customer satisfaction	Not significant	No
McElroy, Morrow, and Rude (2001)	Financial services	All employees	Unit	Voluntary	No relationship (null)	Profit (Year 1)	Linear negative	No
						Profit (Year 2)	Not significant	No
						Customer satisfaction (Years 1 and 2)	Not significant	No
						Productivity (loans funded divided by total sales employees) (Year 1)	Not significant	No

(continued)

Table 1. (continued)

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
						Productivity (loans funded divided by total sales employees) (Year 2)	Linear negative	No
						Cost per loan (Year 2)	Linear negative (sign reversed)	No
Meier and Hicklin (2007)	School districts	Teachers	Organizational (school district)	Total	Inverted U	Student state standardized tests	Linear negative	Yes (significant because of large sample size but very weak)
						Student SAT scores	Inverted U	Yes (inverted U)
Messersmith, Guthrie, and Ji (2009)	Cross-industry	Top management teams	Organizational	Total	Linear negative, moderated by industry discretion and TMT tenure	Return on assets	Linear negative	No
Morrow and McElroy (2007)	Mortgage banking	All employees	Units	Voluntary	Linear negative	Cost per loan	Linear negative (sign reversed)	No
						Loans funded per month per employee	Linear negative	No
						Profits	Linear negative	No
						Customer satisfaction	Linear negative	No
Paul and Anantharaman (2003)	Software	All employees	Organizational	Total	Linear negative	Financial performance (key informant subjective report)	Linear negative	No
Plomondon et al. (2007)	Managed care	Primary care providers	Unit (health plan level)	Total	Linear negative	Health plan member satisfaction	Linear negative	No

(continued)

Table 1. (continued)

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
						Preventative care (e.g., immunization rates, health screenings)	Linear negative	No
Sels et al. (2006)	Cross-industry	All employees	Organizational	Voluntary	Linear negative	Value added per working hour	Linear negative	No
Shaw, Duffy, Johnson, and Lockhart (2005)	Restaurants	All employees	Unit	Total	Linear negative, moderated by social capital losses and network density	Sales per employee	Not significant	No
Shaw, Gupta, and Delery (2005)	Concrete pipe manufacturing	Production workers	Facility	Voluntary	Linear negative, attenuated negative, inverted U, moderated by HRM	Labor hours per ton	Attenuated negative (sign reversed)	Yes (attenuated negative)
						Accident rate	Attenuated negative (sign reversed)	Yes (attenuated negative)
	Trucking	Drivers	Organizational	Voluntary	Linear negative, attenuated negative, inverted U, moderated by HRM	Revenue per driver	Attenuated negative	Yes (attenuated negative)
						Accident frequency ratio	Attenuated negative (sign reversed)	Yes (attenuated negative)
						Out-of-service Percentage	Attenuated negative (sign reversed)	Yes (attenuated negative)
						Operating ratio	Attenuated negative (sign reversed)	Yes (attenuated negative)
						Return on equity	Not significant	Yes (not significant)

(continued)

Table 1. (continued)

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
Shaw, Kim, and Park (2009)	Cross-industry	All full-time employees	Organizational	Voluntary	Attenuated negative, moderated by HRM	Sales per employee	Attenuated negative	Yes (attenuated negative)
	Independent supermarkets					Sales per employee	Attenuated negative	Yes (attenuated negative)
						Accident rate	Not significant	Yes (not significant)
Shen and Cannella (2002)	Cross-industry	Senior executives	Organizational	Total	Moderated by contender or out-sider CEO succession	Return on assets	Linear negative	No
Shevchuk, Leana, and Mittal (2007)	Elementary schools	Teachers	Unit (school within district)	Total	Linear negative	Student achievement	Linear negative	Yes (not significant)
Siebert and Zubanov (2009)	Retail stores	Full-time employees	Unit	Total	Linear negative, interaction with part-time turnover rates	Sales per hour worked	Linear negative	Yes (not significant)
		Part-time employees			Inverted U		Inverted U	Yes (inverted U)
Ton and Huckman (2008)	Retail stores	All employees	Unit	Total	Linear negative, moderated by process conformance	Customer service	Attenuated negative	Yes (attenuated negative)
		Full-time employees				Profit margin	Attenuated negative	Yes (attenuated negative)
						Customer service	Linear negative	No
		Part-time employees				Profit margin	Linear negative	No
						Customer service	Linear negative	No
						Profit margin	Linear negative	No
Van Iddekinge et al. (2009)	Fast-food restaurants	All employees	Unit	Total	Linear negative	Profit margin	Linear negative	No

(continued)

Table 1. (continued)

Paper	Setting	Employee group	Level of analysis	Turnover type	Theory basis	Performance dimension	Direct relationship with performance[1]	Curvilinearity tested?
Virany, Tushman, and Romanelli (1992)	Microcomputer firms	Executive teams	Organizational	Total	Moderated by CEO succession and reorientation	Return on assets	Linear positive	No
Wagner, Pfeffer, and O'Reilly (1984)	Manufacturing	Top-management teams	Organizational	Total	U-shape	Return on investment	Linear negative	Yes (not significant)
Wiersema and Bantel (1993)	Manufacturing	Top-management teams	Organizational	Total	Linear negative	Return on assets	Not significant	No
Yanadori and Kato (2007)	Cross-industry	All employees	Organizational	Voluntary	Linear negative	Sales per employee	Linear negative	No
Zimmerman, Gruber-Baldini, Hebel, Sloane, and Magaziner (2002)	Nursing homes	Nurses	Facility	Total	Linear negative	Infection rates	Linear negative (sign reversed)	No
						Hospitalization rates	Linear negative (sign reversed)	
Zimmerman et al. (2005)	Assisted care	All employees	Facility	Total	Not specified	Patient functional decline (daily living, cognition, behavior, etc.)	Not significant for 5 of 6 dimensions	No
		Nurse aide					Not significant for 5 of 6 dimensions	No

Note: The direction of the turnover–performance relationship is reversed from the original in cases where higher scores reflect poor performance (e.g., accident rates, labor hours per ton, and safety violations).
[1] Relationships are from multivariate equations unless specified.
[2] The turnover rate variable was transformed as the square root to remove potential nonlinearity.

Hausknecht et al. (2009) examined the relationship between voluntary turnover rates and aggregated customer service quality perceptions among units of a large hotel and casino. Using an operational disruption-based framework, they found that increases in voluntary turnover rates resulted in a decrease in positive customer service perceptions, which the authors argued was a leading indicator of customer retention and profitability in the gaming industry (see also, Batt, 2002).

A spate of evidence for the linear negative approach comes from samples of schools as well. For example, Dolton and Newson (2003) examined the relationship between total teacher turnover rates and school performance among primary schools in London, and found that a 10% increase in teacher turnover was associated with declines of 2% and 2.5% for English and math Scholastic Aptitude Test (SAT) scores, respectively. Beyond controls for area, class sizes, special needs, and socioeconomics, schools with the highest turnover rates had test scores 10% to 11% lower than other schools. Extending these findings, some ambitious studies by Shevchuk, Leana, and Mittal (2007) examined the relationship between teacher retention rates and school performance in a large sample of U.S. elementary schools, and found significant positive effects of teacher retention (the inverse of total turnover rates) and, supporting a human capital depletion argument, further found that human capital-based variables mediated this effect.

Plomondon et al. (2007) took the study of turnover rates and quality to a managed-care setting. In line with other studies of customer satisfaction and service quality, they observed a negative relationship between primary-care-provider turnover rates and plan-member satisfaction, but they also showed that these relationships extended beyond attitudes to actual plan-member behaviors. Increases in primary-care-provider turnover rates related to lower rates of childhood immunizations, screenings for cholesterol and cervical cancer,

and childhood wellness visits before 15 months of age. In a large-scale study of nursing homes, Zimmerman, Gruber-Baldini, Hebel, Sloane, and Magaziner (2002) found that nursing home residents suffered higher infection and hospitalization rates when staff had higher turnover rates. But in a similar study of assistant care facilities, the authors (2002) found equivocal turnover rate relationships with medical outcomes.

Although the vast majority of studies following human capital loss and organizational disruption frameworks have been conducted within industries, two recent studies examined these issues in cross-industry settings. Huselid's (1995) influential study of a random sample of publicly traded U.S. organizations did not examine theoretical links between turnover rates and productivity, but it found that turnover rates related negatively to both productivity and profitability. Similarly, Yanadori and Kato (2007) surveyed a random sample of publicly traded organizations in Japan, and found that turnover rates related negatively to productivity and that average employee tenure (an operationalization of human capital accumulations; e.g., Shevchuk et al., 2007) mediated these effects. In a study of small organizations (<100 employees), Sels et al. (2006) found that voluntary turnover rates impacted distal measures of organizational performance such as liquidity, solvency, and profitability through productivity (value added per employee).

Finally, quite a number of studies have examined the relationship between turnover rates among executives and dimensions of organizational performance. Although many of the studies were cleverly conducted, it is difficult to draw firm conclusions to either support or disconfirm a human capital-based view. The equivocal findings occur because of the research questions and the nature of the samples. Many studies (e.g., Kesner & Dalton, 1994; Shen & Cannella, 2002; Virany, Tushman, & Romanelli, 1992) focused on the consequences of CEO succession and drew samples requiring CEO

change. This approach is akin to sampling on the dependent variable and may have contributed to the large variation in relationships from significant and positive (e.g., Keck, 1997; Virany et al., 1992), significant and negative (Cannella & Hambrick, 1993; Shen & Cannella, 2002; Wagner, Pfeffer, & O'Reilly, 1984), to nonsignificant (Kesner & Dalton, 1994; Wiersema & Bantel, 1993). In a recent study, however, Messersmith, Guthrie, and Ji (2009) focused specifically on top management team turnover and organizational performance. Using a large cross-industry sample, these authors found that a unit increase in turnover rates was associated with reductions in the three-year rolling average in return on assets. As these authors noted, we need additional studies to focus on top management team turnover rates outside of the CEO succession paradigm.

Attenuated negative: The sociological view

The attenuated negative view has some roots in organizational psychology, but has been largely promulgated by Price's (1977) sociological take on turnover. As this influential author states: "successively higher amounts of turnover will be found ultimately to produce, more often than not, successively lower amounts of effectiveness at a decreasing rate" (p. 119). Other researchers have found that conceptual argument to be sound, but Osterman (1987), primarily through an economics lens, rather critically countered: the "factual basis for this conclusion is shaky and, ... the conclusion itself is so highly contingent as not to be very helpful" (p. 299).

The underlying reason for Price's (1977) argument can be viewed as a variation on the human capital depletion and organizational control arguments in the linear negative view. When organizations have low voluntary quit rates, their employee groups have accumulated, on average, high levels of human capital. Then additional quits significantly damage human capital accumulations and, in turn, should weaken organizational performance. As quit

rates increase from low to moderate levels, average accumulations of human capital are lowered so that incumbent employees perform less well on average. At this point, any additional quits should be less damaging to organizational performance. Through the lens of organizational control and operational disruption, at high voluntary quit rates the organization is constantly replacing departing employees, so incremental quits are only marginally disruptive. Although voluntary turnover interferes with input–throughput–output processes, and energy and resources are redirected from safety concerns to operation maintenance, increases in voluntary turnover beyond a point are minimally more disruptive.

In their comparative analysis of alternative theories of the voluntary turnover–organizational performance relationship, Shaw, Gupta, & Delery (2005) also used learning curve theory to ground the attenuated negative prediction. A learning-curve-theory approach concerns skill and ability levels as they relate to job performance (e.g., Logan, 1992; Ohlsson, 1996). When quit rates are low, a typical departing employee has a high level of human capital, and a replacement takes quite long to acquire that level. When turnover rates are high, however, average firm-specific human capital accumulations are low, and replacements can quickly reach the performance levels of replaced employees. At high levels, new hires typically replace short-tenured employees and detrimental performance effects are minimal. Shaw, Gupta, & Delery (2005) wrote:

> when the work force is being constantly replaced (e.g., 100% turnover rate), marginal increases in voluntary turnover (e.g., to 110%) are proportionally less problematic in terms of productivity and safety than increases at lower average turnover rates (e.g., from 10% to 20%). (p. 52)

Empirical evidence. Curiously, despite Price's (1977) influence on the turnover literature,

nearly 20 years passed before further development and specific empirical tests of this formulation appeared in the literature. One easily accessible explanation for this absence is that the inverted-U formulation, reviewed in the next section, grew in popularity and general acceptance. The first evidence supporting Price's (1977) prediction appeared in Alexander et al.'s (1994) national study of nursing turnover rates and organizational performance in hospitals. These authors outlined two theories of the turnover–performance relationship (linear negative and inverted U), but uncovered a marginally significant curvilinear pattern supporting Price's (1977) view. Had the authors used Price's (1977) logic as their foundation, we might reasonably conclude that their finding (i.e., a relationship that was strongly negative initially but weaker at higher turnover rates) supported his theory.

Three recent studies also supported Price's (1977) prediction. In their comparative analysis of different theories, Shaw, Gupta, & Delery (2005) found support for this formulation in two intraindustry studies such that the voluntary turnover rates–organizational performance relationship was strongly negative initially, but was later attenuated. Among a sample of concrete pipe manufacturers, they found the attenuated U-shaped form predicting a common productivity measure. Similar results were found for accident rates as a second measure of performance in the concrete pipe sample. In a follow-up study among trucking companies, Shaw, Gupta, & Delery. (2005) replicated the attenuated negative findings for productivity measures such as revenue generated per driver and accident rates. Furthermore, they showed that productivity measures partially mediated the attenuated U-shaped relationship between voluntary turnover and a distal measure of financial performance. Similarly, Ton and Huckman (2008) found that the negative effects of increasing total turnover rates on bookstore performance were much more severe for stores with low overall turnover levels. Although these authors used a measure of total turnover rather than quit rates because of archival data constraints, managers' reports suggested that involuntary turnover rates were minimal in the setting. Shaw, Kim, & Park (2009) attempted constructive replications and extensions (discussed in more detail below) of the attenuated negative effect among a cross-industry sample in Korea, and also in a sample of single-unit U.S. supermarkets. In line with Shaw, Gupta, & Delery (2005) and Ton and Huckman (2008), they found a sharp negative relationship as voluntary turnover rates rose from low to moderate levels, but a weaker slope as quit rates increased from moderate to high levels.

Inverted U: The organizational behavior view

The inverted-U formulation of the turnover rates–organizational performance relationship is perhaps the most well-known, having made its way into the lexicon and the realm of conventional wisdom. Indeed, Glebbeek and Bax (2004) stated that the optimal turnover model from Abelson and Baysinger (1984) "can still be regarded as the standard theoretical model for inferring the consequences of turnover" (Glebbeek & Bax, 2004, p. 278). Beginning with the pioneering papers of Dalton and Todor (1979), Staw (1980), and Abelson and Baysinger (1984), scholars began to delineate the conceptual differences between zero and optimal turnover rates and to appropriately, in my view, criticize the existing literature for an overemphasis on "understanding the turnover 'problem' rather than evaluating it as being excessively high or low" (Abelson & Baysinger, 1984, p. 334). But the literature on the inverted-U relationship has suffered somewhat under the weight of its acceptance, largely because of the lack of compelling and supportive findings. It is ironic that Dalton and Todor (1979), in their pioneering essay on the positive

functions of turnover, stated that the conclusion had become axiomatic that turnover's effects were generally negative. But just three years later, Bluedorn (1982) concluded that the balance of evidence tended to support an inverted-U-shaped relationship, although as Osterman (1987) pointed out, the conclusion was based on the results of only three studies—a kibbutz, a basketball team, and a single group of scientists. To be fair, clearly the evidence for a negative relationship at that time was equivocal (e.g., see Osterman's, 1987, review), but it seems that in Bluedorn's (1982) review, one axiomatic conclusion replaced another.

Hypothesizing an inverted-U-shaped relationship has a straightforward foundation. At low levels of voluntary turnover, the workforce can become stagnated and closed-minded (Dalton & Todor, 1979; Dubin, 1970). At low to moderate levels, however, turnover can be revitalizing by increasing workforce innovation, flexibility, and adaptability (Abelson & Baysinger, 1984; Dalton & Todor, 1979). Moderate levels of voluntary turnover may have other benefits. Alexander et al. (1994) argued that newly arriving employees may be highly motivated to perform well and may even have more updated or current technological skills. A modicum of turnover may also have positive effects in terms of lowering payroll and fringe-benefit costs, a key component of certain productivity, efficiency, and ultimately profitability metrics. At very high levels, however, scholars agree that the negatives outweigh the positives; after a moderate amount, voluntary turnover rates and organizational performance are likely to be negatively related. Thus, this view predicts that turnover rates and performance are positively related between zero and moderate turnover rates, reach a zero-slope point, and become negatively related between moderate and high turnover.

Empirical evidence. Recent studies have examined the inverted-U formulation and have provided some of the first evidence supporting this view. Perhaps organizational literature's most direct test of Abelson and Baysinger's (1984) hypothesized curve is Glebbeek and Bax's (2004) investigation among staff employee turnover rates and performance in a temporary agency. Using total turnover as their key predictor, their regressions found a significant nonlinear relationship between turnover rates and performance. Their evaluation of the shape of the curve is somewhat confusing, however. Although the turning or zero-slope point of the curve was between 6.3% and 9.9% turnover rates depending on the equation, few organizations (between 5% and 14%) had turnover rates below these levels; thus, within their data range, turnover rates generally negatively affected performance. Moreover, their report was unclear as to whether a significant positive slope occurred at the left of the apex. Thus, they concluded that they could not completely rule out a linear negative relationship.

Stronger evidence is found in Meier and Hicklin's (2007) study of the performance of Texas school districts. Using performance on state-level standardized tests and college-bound district SAT and ACT scores as dimensions of organizational performance, these authors found a significant nonlinear effect consistent with Abselson and Baysinger's (1984) hypothesis—an optimal turnover rate of about 16%, which was slightly higher than the mean level turnover rate for the districts (14%). Thus, unlike the Glebbeek and Bax (2004) study, a substantial percentage of organizations had turnover rates to the left of the apex; indeed the slope of the turnover–performance line was positive at mean levels. Siebert and Zubanov (2009) argued that the inverted-U formulation would hold for part-time employees in their sample of units of a retail organization in the United Kingdom. Although their theorizing implies a contingency that will be discussed further in the next section, they found the hypothesized inverted U with an optimal total turnover rate of 15% for part-timers on a measure of labor productivity.

Summary, integration of the perspectives, and issues

As the above review demonstrates, the literature is replete with views about the shape of the turnover rates and organizational performance relationship. As noted by Shaw, Gupta, & Delery (2005), these alternative perspectives are not necessarily competing views. It is straightforward to speculate that all three views can be integrated into a common form. One possibility for integration is a cubic curvilinear shape where organizational performance increases initially as turnover rates rise, reaches an apex, and takes a negative slope; but this negative slope is attenuated at high turnover levels. Under an integrative view, the prevailing slope of the relationship between turnover rates and organizational performance would be negative, reflecting losses in human capital, social capital, and the generally negative effects associated with organizational disruption, as several authors have argued. But, as turnover rates increase from low to moderate levels, some organizational performance improvement resulting from reduction in stagnation and influx of new ideas increases may be found. At high levels of turnover, the attenuated negative effects may prevail as human and social capital is depleted and performance declines are not as incrementally damaging.

Although the integration of the perspectives is straightforward conceptually, as more empirical tests of curvilinear forms accumulate in the literature, a distinct pattern of findings which casts doubt on this possibility is beginning to emerge. As noted above, most of the evidence now favors a linear negative view, although often curvilinear tests are not reported. A wave of recent empirical tests supports an attenuated negative relationship in cross-organization samples, and these studies also tend to examine voluntary, rather than total, turnover rates. The inverted-U perspective has much less supportive evidence behind it than its popularity would suggest, but three recent studies provide some support for this view formulation.

Interestingly, however, these studies have been conducted in what amount to cross-unit, rather than cross-organization, samples and in each case total turnover rates, rather than voluntary turnover rates, have been examined.

Thus, while I encourage researchers to explore the potential integration in empirical research there are currently two evidence-based reasons that cast doubt on whether this is a substantive explanation. First, the distinctions between samples that are cross-organization (with different policies, practices, and organizational forms) versus cross-unit (with similar policies, practices, and organizational forms) are key issues for researchers to address. In addition, future investigations are needed to determine if choice of sample or choice of turnover rate is driving the inverted-U effects. An alternative to the conceptual arguments proposed by Abelson and Baysinger (1984) concerning stagnation is simply that high fire rates in these settings create some positive effects.

Resolving these issues will take time. In the following sections, I argue that the key to a resolution may come from examinations of the moderators of the relationship and from overcoming methodological problems that hamper our understanding. Instead of attempting to integrate perspectives into a single curvilinear form, which also may be difficult to detect because of unreliability and statistical power issues, I suggest that it would be more fruitful to isolate the conditions that might support each formulation. I turn to these issues below.

Moderators of the turnover rates–organizational performance relationship

In this section, I detail the existing evidence regarding important moderators of the voluntary turnover rates and organizational performance relationship. I categorize these contingency factors under three labels—human resources management (HRM) and employment systems,

content of turnover rates, and organizational and work environment factors.

HRM and employment systems

Arthur's (1994) broadly cited work in the steel minimill industry was the first to propose that an organization's investments in HRM systems play a role in gauging how severely voluntary turnover rates damage performance. This contextual view holds that when investments in HRM practices are substantial, losses through voluntary turnover strongly and negatively affect workforce performance and, ultimately, organizational performance as a whole, but the negative relationship is attenuated when HRM investments are low. Arthur (1994) grounded this prediction by suggesting that among high-investment organizations—organizations with commitment systems in his parlance—jobs require high skill and training levels. In these circumstances, employees take significant time to reach adequate performance levels; turnover greatly disrupts performance because employees "take on more managerial-level decision-making tasks, their organizational centrality, and hence the potential for their departure to disrupt organizational functioning" (p. 674). Guthrie (2001) refined these arguments by arguing that high levels of HRM investments create workforces that are rare, valuable, and difficult for organizations to recreate and their competitors to imitate. Organizations are also more likely to use such practices when they deem employees to be critical to their success. Losses through turnover are therefore substantially more detrimental. These studies provided impressive evidence of the moderation of a linear relationship by HRM systems. After clustering mills into commitment (high investments) and control (low investments) categories, Arthur (1994) found very strong total turnover rates–productivity correlations among commitment organizations, but nonsignificant correlations among control organizations. Guthrie (2001) later replicated these findings

in a cross-industry sample of organizations in New Zealand, finding that as total turnover rates increased from mean levels to one standard deviation above the mean, per-employee productivity decreased by nearly $34,000, but not for organizations with little invested in HRM.

Two recent studies have also attempted to advance the HRM-moderated arguments. Shaw, Kim, & Park (2009) argued that a better specification for the HRM-moderated approach would include a consideration of the potential for nonlinearity in the direct relationship between voluntary turnover rate and performance. A concurrent consideration of curvilinearity and HRM moderation would rule out the possibility that Arthur's (1994) and Guthrie's (2001) findings happened only because they did not test a curvilinear relationship between turnover and performance (Cohen, Cohen, West, & Aiken, 2003). In a cross-industry study of Korean organizations and an intraindustry study of U.S. supermarkets, Shaw, Kim, & Park (2009) found evidence for this curvilinear interaction; they observed the attenuated negative pattern only among high HRM investment organizations.

Siebert and Zubanov's (2009) study also has implications for employment relationships and HRM investments. Like Arthur (1994), they argued that under commitment HRM systems, jobs require considerable formal training and tacit knowledge, so firms must select employees carefully. Under these systems, which were operationalized as full-time employees in a retail chain, the authors argued that total turnover rates (quits and discharges) should negatively affect performance. In contrast, the authors reasoned that total turnover rates should have an inverted-U-shaped relationship with performance in secondary employment relationships, which they operationalized as part-time employees in the chain. Interestingly, these arguments were not grounded in the typical inverted-U reasoning outlined earlier, but rather primarily in discharge-rate arguments. That is, careful selection is

typically not used for hiring part-time work-ers, so more turnover including discharges is needed to eliminate poor performers.

Siebert and Zubanov (2009) provided strong evidence for the curvilinear relationship among part-time employees. The turnover–performance results for full-time employees were much murkier. Neither the linear term nor the squared term for full-time employee turnover rates was significant in performance equations, but the authors concluded that a significant interaction of full- and part-time turnover rates "give the conventional negative turnover–performance link for full-timers" (p. 305). At best, this inter-pretation is unconventional for a main effect. Looking closely at their results, their interac-tion plot (Figure 4a, p. 309) includes part-time values only above mean levels, and shows a strongly negative full-time turnover rate–organizational performance relationship only when part-time turnover rates are more than +1 standard deviation above the mean. In addition, they failed to consider the underlying main effects when calculating interaction simple slopes (Siebert & Zubanov, 2009, p. 310). Back-of-the-envelope calculations using their coefficients and standard +1 and −1 standard deviation values show that the full-time turnover rate slopes are only negative above mean levels of part-time turnover, but are *positive* (albeit not sig-nificant) below mean part-time levels. Thus, their conclusion regarding a prevailing negative effect for commitment systems seems overstated.

In addition, the authors make a larger point: optimal turnover rates may occur for low HRM-investment employee groups, but those optimal rates may differ as a function of the turnover rates for other, perhaps more central, employee groups. Conceptually, this is an important step forward, but while Siebert and Zubanov (2009) estimated an interaction between the two turn-over rates, their model lacks a key higher order term (the interaction between part-time turnover rates squared and the linear full-time turnover rates term) that would be necessary to provide empirical evidence of this relationship.

Content of turnover rates

The literature on the content of turnover rates can be broadly grouped into two categories—losses relative to in-role performance or human capital and social capital losses. The idea of functional versus dysfunctional turnover having different implications for organizational performance has a long history in organizational psychology. Individual-level researchers have long been con-cerned with whether good performers stay or leave (e.g., Dalton, Krackhardt, & Porter, 1981; Hollenbeck & Williams, 1986; Trevor, Gerhart, & Boudreau, 1997) and organizational-level research has also begun to explore these issues more fastidiously (e.g., Park, Ofori-Dankwa, & Bishop, 1994; Shaw, Dineen, Fang, & Vellella, 2009; Shaw & Gupta, 2007).

Several studies have made strides in determining the impact of functional versus dysfunctional forms of voluntary turnover on organizational performance. Beadles, Lowery, Petty, and Ezell (2000) collected data on turn-over and in-role performance from 1,750 indi-viduals in 26 retail stores. Calculating in-role performance losses from performance records using meta-analytic techniques across the stores, these authors found that turnover frequency rates were negatively related to sales growth (−.15), but that turnover functionality—a com-posite index of good performer retention and poor performer withdrawal—was positively related (.18). They calculated that losing an employee in the highest performing category was five times more detrimental to organiza-tional performance than losing a less well-performing but still acceptable employee.

Two recent studies have directly addressed the content of turnover rates by attempting to capture the losses organizations experience through in-role performance or human capital losses and social capital losses, or the damage to interpersonal relationships and communica-tion networks when employees leave. Building on the elements of a social-capital theory of turnover and performance from Dess and

Shaw (2001), Shaw, Duffy et al. (2005) argued that the relationship between turnover rates and organizational performance would be stronger when key individuals in the organizational network were lost. These authors operationalized social-capital losses as the extent to which employees in key bridging or "structural hole" positions departed. Results among a sample of units of a restaurant chain indicated that social-capital losses substantially and negatively related to store performance (productivity and change in productivity) when overall store turnover rates were low. Social-capital losses were most damaging when the first network communication holes were created, but less damaging in high turnover stores where many gaps were already apparent. Interestingly, in-role performance losses (calculated from supervisor reports of employee performance) were not significantly related to store performance.

Shevchuk et al. (2007) advanced these results and argued that human- and social-capital losses would have multiplicative effects on organizational performance. In their sample of schools, they operationalized human-capital losses as those associated with tenure and social-capital losses as those associated with the closeness of connections with other teachers and administrators. They found substantial support for their predictions— beyond the main effects of turnover rates, human- and social-capital losses interacted such that the relationship between human-capital losses and school performance was significantly stronger (negative) when social-capital losses were also high.

Organizational context and characteristics

Studies of organizational context factors that may exacerbate or attenuate the effects of turnover rates on organizational performance are rare, but two recent studies have provided promising evidence concerning these effects. Hausknecht et al. (2009) argued that the concentration of newcomers in a unit would exacerbate the effects of turnover rates on performance because of a lack of resource availability for socialization and training. Similarly, Ton and Huckman (2008) argued that process conformance, or the degree to which managers aim to reduce variation in operations in accordance with prescribed standards, would mitigate the effects of turnover rates on performance. This line of reasoning shares some common ground with Hausknecht et al.'s (2009) hypotheses concerning resources available for socialization and knowledge transfer. As Ton and Huckman (2008) explained, high levels of process conformance allow knowledge concerning task performance and other critical issues to be transferred more easily to new employees, while in low-conformance situations where deviations from the norm are accepted, passing along new information is more difficult. Both studies reported support for their hypotheses—turnover was more strongly and negatively related to performance when newcomer concentration was high (Hausknecht et al., 2009) and process conformance was low (Ton & Huckman, 2008).

In their organizational-disruption framework, Hausknecht et al. (2009) also argued that higher turnover rates would be more damaging to organizational performance in larger units, in part because it would exacerbate coordination, communication, and existing inefficiencies associated with larger groups. They found support for this proposition as well—that is, the negative relationship between turnover rates and customer service quality (in gaming units) was more strongly negative for larger units.

Toward the future: Research agenda and methodological assessments

My suggestions for future research in this area and for methodological improvements overlap considerably. Indeed, some advances supporting existing and new theory can come only if we can improve measurements of key variables (turnover rates primarily) as well as discover research designs and analysis approaches that allow us to

rule out alternative explanations. I address a variety of these issues below.

Overcoming measurement issues. Individual-level research that isolates high- and low-performance leave is quite well developed. Much progress in this area can be traced to the ambitious work of Trevor et al. (e.g., Trevor et al., 1997). At the organizational level, however, we know comparatively little about the impact of functional and dysfunctional turnover on organizational performance (see McElroy et al., 2001, for an exception). Some of this, as noted above, has to do with measurement problems in the literature; primarily the reliance on measures of total turnover that include quit and discharge rates. In my judgment, a literature-level pattern is emerging in terms of turnover–organizational performance relationships when we use different operationalizations of turnover rates. When researchers operationalize turnover rates using a combination of quits and discharges (e.g., Glebbeek & Bax, 2004; Meier & Hicklin, 2007; Siebert & Zubanov, 2009), inverted-U or optimal turnover level effects are more commonly found. When researchers examine voluntary turnover among full-time employees, or when they employ total turnover rates in settings where discharges are minimal (e.g., Alexander et al., 1994; Shaw, Gupta, & Delery, 2005; Shaw, Kim, & Park, 2009; Ton & Huckman, 2008), the evidence increasingly supports Price's (1977) attenuated negative theory. Although minimizing the impact of this conflation on the cumulative body of knowledge is tempting, unless and until we can trace the sources of turnover and address the content of turnover rates, we are unlikely to resolve the theoretical confusion. In particular, although total turnover measures may yield inverted-U relationships with performance dimensions, it is impossible to conclude whether support exists for underlying theoretical arguments about reductions in stagnation (e.g., the basis for Abelson & Baysinger's,

1984, arguments) or Siebert and Zubanov's (2009) sorting arguments.

Beyond the terms of voluntary and involuntary distinctions in turnover rates, recent works by Beadles et al. (2000) and Shaw, Duffy et al. (2005) assessed performance losses from turnover and took steps forward for developing evidence about functional and dysfunctional rates. Researchers could advance the literature substantially by testing alternative forms of the turnover–performance relationship across different types of turnover rates. Such studies could answer such questions as "Do good-performer and poor-performer quit rates affect organizational performance differently?" "What shape do we find in the turnover–performance relationship for quit rates among good performers and poor performers?"

Developing richer conceptualizations of employment relationships. At the organizational level, researchers have begun to investigate the antecedents of separate quit rates by performance level (e.g., Shaw, Dineen et al., 2009; Shaw & Gupta, 2007), heeding calls for further understanding workplace sorting effects (e.g., Gerhart & Rynes, 2003). For example, Shaw and Gupta (2007) found that performance- and seniority-based pay dispersion would result in different quit patterns across high, average, and poor performers. Shaw, Dineen et al. (2009) further argued and found that different employment relationships—drawing on Tsui, Pearce, Porter, and Tripoli's (1997) model—resulted in different quit patterns by performance level. These direct tests of employment relationships and functional and dysfunctional turnover rates, combined with insinuations that these sorting effects occur and have implications for organizational performance (Siebert & Zubanov, 2009), could extend our understanding of the turnover rates–organizational performance relationship. In particular, the HRM-moderated approach of Arthur (1994) and Guthrie (2001), and implied by Siebert and Zubanov (2009), could be enhanced by

employing richer conceptualizations of HRM-based employment relationships. Following Shaw, Dineen et al. (2009), one approach would be to adopt the employee–organization-relationship approach outlined by Tsui et al. (1997; see also Hom, Tsui, Wu, & Lee, 2009), showing that from an employer perspective, some HRM practices represent company inducements and investments in employees, while other practices represent employers' requirements or expectations of their workforce (expectation-enhancing practices). Practices such as base pay and benefits levels represent inducements and investments, while performance-based pay and emphasis on performance appraisal suggest higher levels of expected contributions. By crossing these two axes, we form a typology of four employee–organizational relationships—spot contract, underinvestment, overinvestment, and mutual investment. Shaw, Dineen et al. (2009) showed that while overall quit rates tend to be low under mutual-investment systems, sorting effects indicate that expectation-enhancing practices attenuate the negative relationship between inducements and investments and good-performer quit rates, and exacerbate the negative relationship with poor-performer quit rates. Good-performer quit rates tended to be highest in spot-contract situations, but otherwise low, including underinvestment situations where employers offered no long-term commitment but still expected much from employees. The authors reasoned that the likelihood of relative advantage may have outweighed the stability of long-term investments for good performers in such systems. In contrast, poor-performer quit rates tended to be highest in underinvestment situations but generally low otherwise.

While Shaw and Gupta's (2007) and Shaw, Dineen et al.'s (2009) studies showed that employee–organization exchange relationships can predict differential quit rates, a fruitful path would be to explore how turnover under these different models affects organizational performance. When evaluating the current HRM-moderated literature, the operationalization of employment systems in Guthrie (2001) and Shaw, Kim, & Park (2009) runs on a single continuum from spot contract (or low road) to mutual investment, while the operationalization is a dichotomy in Arthur (1994) and Siebert and Zubanov (2009). These approaches fail to consider that many organizations may have imbalanced under- or overinvestment systems. Applying the Shaw, Dineen et al.'s (2009) findings on workforce sorting, the focus on a single continuum of HRM practices would reveal little information about how the workforce was being sorted as, indeed, quit rates among good *and* poor performers were low in a mutual-investment (or commitment) system. Because the breadth and depth of employee contributions differ across employment systems (Siebert & Zubanov, 2009), a fruitful endeavor would be to determine the implications of different turnover patterns for organizational performance under a richer conceptualization of employment relationship.

Turnover and the social fabric of organizations. A most promising direction for future turnover research, I suggest, is the examination of how turnover changes, damages, or perhaps improves the organization's social fabric (through functional quit patterns). Dess and Shaw's (2001) foray into the realm of social capital has brought some progress in terms of detailing how losses relate to communication patterns and accumulated trust and confidence (e.g., Shaw, Duffy et al., 2005; Shevchuk et al., 2007). This research remains at an early stage, but dovetails well with individual-level research on social networks and individual turnover decisions. Krackhardt and Porter's (1986) early work showed snowball effects; that is, restaurant turnover patterns were linked to employees' social networks and often occurred in clusters. Recent contributions have shown convincingly that social networks and social relationships of individuals (e.g., Mossholder, Settoon, & Henagan, 2005) and

their coworkers (Felps et al., 2009) substantially affect individual turnover decisions. When key individuals embedded in social networks leave, the effects are highly damaging to proximal workforce performance outcomes, and these effects are apparent beyond traditional in-role performance and human capital-based losses from departures.

In addition to answering the need for additional tests of social-capital loss effects, future research could address several important questions. First, little is known about the damage to social networks and patterns of relationships when turnover occurs in isolation or in clusters. When key actors with bridging or linking position in the network decide to quit, a communication gap is left that ultimately damages organizational performance (Shaw, Duffy et al., 2005) because social networks provide conduits for sharing, expanding, and transforming knowledge (Nahapiet & Ghoshal, 1998; Shevchuk et al., 2007). But we do not know whether these gaps persist for long or are quickly filled by current employees or replacements. In addition, existing research on social capital and human capital losses have estimated the performance effects fairly statically, but future investigations that include network changes would be a step forward (e.g., Subramony & Holtom, 2010; van Iddekinge et al., 2009).

Conclusions

I encourage future researchers to obtain measures of turnover rates that include the type of turnover—quits, discharges, and, if available, other sources such as reduction in force and retirement—or, if not possible, to obtain estimates on the relative percentages of each. Truly, measures can be critiqued for containing errors; granted, in certain instances the line between a quit and a discharge is blurred. But, largely distinctions are clear, and this type will help rule out alternative explanations. I also encourage tests of nonlinearity in all future studies.

My goal in this review is to provide a platform from which future researchers could advance this literature, which in the last decade has made outstanding progress with many unique and insightful contributions. I concur with prior researchers who have called for competitive tests of alternative and competing hypotheses (e.g., Holtom et al., 2008; Platt, 1964; Shaw, Gupta, & Delery, 2005); it is time to step forward by designing studies that allow for fair tests of alternative perspectives and/or by developing more precise predictions that will reveal through empirical testing the conditions supporting each view.

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Author biography

Jason D. Shaw is a professor and the Curtis L. Carlson School-wide Professor in the Carlson School of Management at the University of Minnesota. He received his PhD from the University of Arkansas in 1997. His research interests include the psychology of pay, turnover, and person–environment congruence issues. His research has appeared in publications such as the *Academy of Management Journal*, *Academy of Management Review*, *Journal of Applied Psychology*, *Personnel Psychology*, *Organizational Behavior and Human Decision Processes*, and *Strategic Management Journal*, among other outlets. He is currently an associate editor of the *Academy of Management Journal*.