UNDERSTANDING VOLUNTARY TURNOVER: PATH-SPECIFIC JOB SATISFACTION EFFECTS AND THE IMPORTANCE OF UNSOLICITED JOB OFFERS

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In response to traditional approaches' limited success in explaining turnover, we explored a paradigmatic shift in turnover research. Using a large national sample, we found we could more successfully model voluntary turnover by recognizing that job (dis)satisfaction and ease of movement importance depend on the group of leavers being studied. For example, ongoing job satisfaction had smaller effects for turnover driven by certain shocks (unsolicited job offers and family-related reasons), which accounted for 40 percent of all quits. Moreover, the prevalence of unsolicited job offers may necessitate rethinking the role of ease of movement in turnover decisions.

With thousands of published studies of "voluntary turnover" (quitting), it may seem incongruous to argue that, in fact, still little is known about why people quit. Yet the roles of perceived desirability of movement (often represented as job satisfaction) and ease of movement (often represented as unemployment rate), which are the two dominant predictors in voluntary turnover research, remain problematic in explaining quitting behavior. Thus, despite the numerous, often compelling, efforts at describing turnover processes, it appears that there is considerable room for improvement in how researchers approach these two fundamental precursors.

The stakes are high, as improving upon turnover prediction promises considerable consequences. From the applied perspective, more effective turnover prediction potentially offers extensive gains, given that voluntary turnover is associated with high replacement costs (Cascio, 2000), the loss of star performers (Trevor, Gerhart, & Boudreau, 1997), and organization-level financial outcomes (e.g., Glebbeek & Bax, 2004; Kacmar, Andrews, Van Rooy, Steilberg, & Cerrone, 2006; Shaw, Gupta, & Delery, 2005). On the research side, rethinking how the primary turnover predictors are approached involves a qualitative shift in turnover theory.

Recently, the unfolding model of turnover (Lee &

Mitchell, 1994) has initiated this shift by demonstrating, using data on leavers, the presence of multiple turnover pathways, some of which deviate from traditional turnover perspectives that focus on perceived desirability and ease of movement. Here we take the next logical step by using data on both leavers and stayers, which allows us to statistically evaluate the relative effect sizes of desirability and ease of movement for different turnover pathways. Specifically, we examine job satisfaction effects for various employee groupings. We also explore an important alternative means of studying the impact of ease of movement on voluntary turnover by focusing on unsolicited job offers as "shocks" that may lead to quitting. Consequently, we prescribe considerable changes to the traditional turnover research paradigm's approach to the two fundamental predictors of voluntary turnover.

CONCEPTUAL DEVELOPMENT

March and Simon (1958) described each member's participation in an organization as contingent upon an inducement-contribution utility balance that is, in turn, a function of two major distinct but related motivational forces: (1) the perceived desirability and (2) the perceived ease of movement out of the organization. Perceived desirability of move-

ment is mainly influenced by job satisfaction and is often described as a "push" factor. Perceived ease of movement depends on each person's perception of the availability of jobs in the external job market and is often described as a "pull" factor.

Despite March and Simon's (1958) pioneering work on psychological mechanisms, which suggested the interaction of perceived desirability and ease of movement as a main determinant of actual turnover, it was not until Mobley's (1977) model that researchers began to elaborate on the cognitive or psychological decision processes linking negative job attitudes with actual voluntary turnover. Mobley focused on turnover as a process and sought to map out psychological and perceptual processes thought to mediate the relationship between satisfaction and turnover. Specifically, in the model he proposed a series of links between individuals' evaluations of their current jobs and actual turnover in a causal order: Evaluation of existing job → job dissatisfaction → thinking of quitting → evaluation of expected utility of search and cost of quitting → intention to search for alternatives → search for alternatives → evaluation of alternatives → comparison of alternatives vs. present job → intention to quit/stay → quit/stay. Subsequent models (see Griffeth & Hom, 1995; Lee & Mitchell, 1994; Maertz & Campion, 1998; Steel, 2002) have generally reflected the influence of both March and Simon's (1958) push and pull factors and the intervening psychological mechanisms between job satisfaction and actual turnover described by Mobley (1977).

We make three general observations on such models. First, they typically describe "the employment search process as an outgrowth of disaffection" (Steel, 2002: 354) and the translation of dissatisfaction into search and then quitting as "highly rationalized, systematic, and orderly" (Steel, 2002: 353). Such models have likewise been described as depicting an "orderly progression from dissatisfaction" or a "slow burn, deliberative process" (Kammeyer-Mueller, Wanberg, Glomb, & Ahlburg, 2005: 3). Second, although these models do include pull factors (e.g., unemployment rate, perceived alternative job opportunities), it may be that too little conceptual and empirical attention has been paid to the ease of movement component of the original March and Simon (1958) model (see also Griffeth, Steel, Allen, & Bryan, 2005). For example, in their meta-analysis of voluntary turnover determinants, Griffeth, Hom, and Gaertner (2000) found 67 studies of job satisfaction as a predictor, but only 11 studies of alternative job opportunities.

Third, and almost certainly related to the first two observations, empirical evidence over the years appears to indicate that there is room for improvement in such models regarding how well (e.g., in terms of predictive validity and/or model fit) they capture and describe voluntary turnover decisions. The most recent meta-analytic study (Griffeth et al., 2000) showed a mean correlation between job satisfaction and voluntary turnover of −.19 (representing roughly 3.6 percent variance explained). Efforts to incorporate pull factors such as unemployment rate (e.g., Gerhart, 1990; Hom & Kinicki, 2001; Trevor, 2001) and perceived availability of job alternatives (Griffeth et al., 2000; Griffeth & Hom, 1988; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Steel & Griffeth, 1989) have produced an even more modest level of variance explained (e.g., Griffeth al. [2000] reported a mean correlation of .12, which translates to 1.4 percent variance explained). Indeed, although the predictive validity of perceived alternatives is considered to be weak (Griffeth et al., 2000), unemployment rate prediction of turnover, though robust at aggregated levels of analysis (e.g., Armknecht & Early, 1972; Eagly, 1965), has been mixed at the individual level (Trevor, 2001).

How should one interpret these findings? Do they demonstrate that the key push and pull constructs are much less important than existing theoretical models suggest? Perhaps. However, it is also possible that a few straightforward changes to the traditional turnover research paradigm would make an important difference in findings and interpretations. First, it is necessary to recognize that some types of turnover follow the traditional model, with its central role for job satisfaction, and others do not. Second, it may be necessary to approach the ease of movement part of the model in a new way.

On the first issue, the evidence increasingly suggests that many instances of turnover follow paths that are either not described or are peripheral in traditional models (Lee & Mitchell, 1994; Lee, Mitchell, Wise, & Fireman, 1996; Lee, Mitchell, Holtom, McDaniel, & Hill, 1999; Maertz & Campion, 2004; Steel, 2002). For example, quits may be triggered by reasons other than job dissatisfaction—including unsolicited job offers (Gerhart, 1990; Hulin et al., 1985), job-related shocks such as downsizing (Lee et al., 1999), pure impulse (Hulin et al., 1985; Lee & Mitchell, 1994), pursuit of nonwork alternatives (e.g., schooling, family), or a strategy of quitting after a certain amount of time (e.g., after receiving a retention bonus)—without other jobs necessarily being in place (Lee & Mitchell, 1994; Lee et al., 1999).

On the second issue, the lack of predictive validity of pull factors in voluntary turnover models may be a result of thinking too narrowly about ease of movement. Of particular relevance is evidence

that one of the most important paths overlooked in traditional turnover models is initiated by the shock of an unsolicited job offer (Holtom, Mitchell, Lee, & Inderrieden, 2005; Lee et al., 1999; Mitchell, Holtom, & Lee, 2001; Steel, 2002), a very tangible and relevant measure of ease of movement in any employee's turnover decision. The implication is that researchers have perhaps greatly underestimated the importance of pull factors in voluntary turnover decisions by not paying sufficient attention to the role of unsolicited job offers.

In the present study, we develop a conceptual logic for why the key desirability of movement and ease of movement factors, job satisfaction and unemployment rate, are expected to have different effects for different types of job leavers (different "voluntary turnover groups"). In other words, the traditional model of voluntary turnover is expected to apply reasonably well to some turnover groups, less well to others. We also focus on the potential importance of unsolicited job offers as providing an important alternative means of studying the impact of ease of movement on voluntary turnover.

On the empirical front, we note that the pioneering empirical work on distinct paths in the unfolding model program of research has relied exclusively on data on leavers and that these data have been collected following the decisions to leave. By contrast, we have data on both leavers and stayers and a predictive design. Thus, our study has the important advantage of being able to build on the substantial foundation provided by the unfolding model and to examine, in a predictive fashion, the degree to which the probability of different types of turnover is differentially responsive to ease of movement and desirability of movement factors. With our use of a large, diverse, national sample, we are also able to provide estimates of the relative size of different turnover groups, which is important to the degree that the groups to which the traditional turnover model applies less well (e.g., those receiving unsolicited offers) are large. We return to the potentially important role of unsolicited offers below but first introduce the broader unfolding model of turnover.

DISTINCT PATHS AND THE UNFOLDING MODEL OF TURNOVER

A key overriding hypothesis of the unfolding model (Lee & Mitchell, 1994; Lee et al., 1999) is that the relative importance of job dissatisfaction, job search, and shocks varies across five separate turnover paths (referred to as paths 1, 2, 3, 4a, and 4b), some of which clearly deviate from the traditional, linear, slow-burn turnover process (see below). An important new construct in the unfolding model is

the "shock to the system," described as a jarring event that makes employees reassess their current employment situations. In contrast to traditional models, the unfolding model suggests that such shocks can drive a decision to leave. The shock itself can be negative or positive, job-related or non-job-related, internal or external to an individual, and expected or unexpected. Examples include unsolicited job offers, promotion, changes in marital status, transfers, firm mergers, and downsizing.

According to the model, employees following path 1 leave without extensive mental deliberation about the current and/or alternative jobs because leaving is a preprogrammed action plan for answering a specific kind of shock (e.g., a planned pregnancy). In response to shocks, employees following path 2, in the absence of a script-driven action plan, first reevaluate their current work circumstances in terms of fit or compatibility with their images, which comprise self-held values, goals, and strategies for goal attainment. If an image violation occurs during this path 2 "compatibility test," employees leave their current jobs without seeking alternative jobs. Path 3 applies to employees who experience a shock and an image violation, but unlike path 2, it includes an evaluation of at least one alternative. Although there may also be active search for alternatives, such search may be limited or nonexistent if the shock of an unsolicited job offer serves as the alternative. Alternatives are subjected to a "profitability test" in which they are compared to a current job, as in traditional turnover models' economically rational decision making (e.g., Parsons, 1973). The traditional turnover process is also incorporated into the unfolding model in path 4b, in which quitting, rather than being triggered by a shock, is a function of an accumulated negative job attitude (e.g., dissatisfaction) stemming from the routine, casual, or random ongoing reassessment of the current work environment. Though similar to path 4b, path 4a does not include consideration of alternatives prior to quitting.

In sum, the unfolding model explicitly addresses and systematically describes multiple distinct turnover paths. In particular, in the unfolding model the key push factor of job (dis)satisfaction does not always drive turnover, and the turnover decision situation can change rapidly because of shocks (note that any dissatisfaction in paths 2 and 3 would simply be mediating shock effects). It is explicitly recognized that even relatively satisfied employees may decide to quit, given certain circumstances (such as unsolicited job offers and family reasons), and that dissatisfied employees may not quit, which may help explain the limited predictive validity of job satisfaction observed in empirical research. Empirical evidence supports the idea that there are distinct paths and that a

substantial amount of voluntary turnover is not well captured in traditional turnover models that focus on the conventional dissatisfaction → search → turnover path.[1]

Hypotheses: Distinct Paths and the Roles of Push and Pull

As our above review indicates, it appears that much turnover follows a path that differs from the traditional turnover path. Researchers, however, have yet to study and document statistically different effects of key voluntary turnover determinants on the different paths. Thus, we now turn to an examination of how push and pull factors (job satisfaction and labor market conditions) are expected to differ in their ability to explain voluntary turnover in different groups.

We distinguish four groups of leavers: employees who quit to accept other jobs after employed searching (group 1); those who search for alternative jobs (group 2); those who accept unsolicited job offers (group 3); and those who focus on family-related issues, including pregnancy (group 4). Below, we describe how the turnover process is expected to differ in these groups. Specifically, we focus on the differential roles of job satisfaction and general labor market opportunities, as measured by unemployment rate.

Group 1: Individuals who quit after successful search for another job (dissatisfaction → search → new job → quit). Individuals who leave to take other jobs are likely to follow the well-described turnover path laid out by traditional models. That is, these employees are dissatisfied with their current jobs and quit with job offers in hand after going through a decision process characterized by search activity and comparison of alternative jobs. This process is similar to path 4b in the unfolding model. (To the degree that job dissatisfaction results from a shock such as an unsolicited job offer, and this disaffection results in search and turnover, elements of path 3 are also relevant.) In this group, job satisfaction is expected to have a negative main effect on voluntary turnover. Also, the availability

of alternative jobs in the external market (e.g., as indicated by a relatively low unemployment rate) is expected to have a positive main effect on voluntary turnover. In addition, conceptual models (March & Simon, 1958; Mobley, Griffeth, Hand, & Meglino, 1979; Muchinsky & Morrow, 1980; Price, 1977; Trevor, 2001) and empirical evidence (Carsten & Spector, 1987; Gerhart, 1990; Steel & Griffeth, 1989; Trevor, 2001) have suggested a statistical interaction whereby job dissatisfaction is more likely translated into voluntary turnover when alternative jobs are readily available in the external job market. That is, people should be more likely to act on dissatisfaction by quitting when the job market makes it easier or less costly for them to do so.

Hypothesis 1a. In group 1 (individuals who quit after successful search for other jobs), the relationship between job satisfaction and voluntary turnover is negative.

Hypothesis 1b. In group 1, the relationship between unemployment rate and voluntary turnover is negative.

Hypothesis 1c. In group 1, the negative relationship between job satisfaction and turnover is stronger when the unemployment rate is low.

Group 2: Individuals who quit to search for other jobs (dissatisfaction → quit → no new job → search). Individuals in group 2 decide to quit to search without first lining up other jobs. Although researchers have recognized this jobless turnover path (Hom et al., 1992; Hom & Griffeth, 1991; Hom, Griffeth, & Sellaro, 1984; Lee & Mitchell, 1994; Maertz & Campion, 2004; Matilla, 1974), it has received much less research attention than group 1.

Individuals in group 2 may have followed one of at least two possible decision processes. Some employees may or may not have actually been engaged in search activities but decide to quit without lining up alternative jobs because they have decided that unemployed job search might be more efficient than employed search (Burdett, 1978; Kahn & Low, 1984). (This path does not appear to be captured in the unfolding model.) Other possibilities are that people decide that anything would be better than remaining in their current jobs because of unbearable employment situations and/or impulse motivates their decisions to quit (Hulin et al., 1985). This case is perhaps analogous to decision paths 2 and 4a in the unfolding model (Lee & Mitchell, 1994). In either case, low job satisfaction initiates the decision process, low satisfaction that has either been induced by a shock (path 2) or accumulated over time (path 4a), and the job satisfaction–

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[1] Holtom, Mitchell, Lee, and Inderrieden (2005) examined 1,205 leavers across multiple samples and found that 711 (59%) of these cases involved shocks. Further, 371 of these shocks (52 percent of shocks, 31 percent of all turnover) involved job offers. The great majority of these offers appear to have been unexpected, given the definition of a shock as a "jarring event" (Holtom et al., 2005: 343) and given that a deeper analysis of a subsample of 169 path 3 shocks showed that 153 (81%) were "unexpected" as opposed to "expected."

voluntary turnover relationship is expected to be negative and of similar size to that in group 1.

Hypothesis 2a. In group 2 (individuals who quit to search for other jobs), the relationship between job satisfaction and voluntary turnover is negative.

The effect of unemployment rate on voluntary turnover is unclear here and may depend on the specific decision process followed. In the case of those quitting in the belief that full-time search is more efficient, we expect this strategy to be seen as most advisable when there are thought to be significant opportunities available to be explored. Thus, labor market conditions are expected to be factored into these employees' quit decisions, as in the group 1 case.

By contrast, impulsive quitting might result in a weaker effect of the unemployment rate, relative to the above subgroup and to group 1, because strong dissatisfaction, without significant concern for the possible consequences (e.g., long-term income loss), is the key driver for truly impulsive quitting (e.g., Maertz & Campion, 2004). However, we suspect that this pure form of impulsive quitting is rare and that to some degree, people often give at least partial consideration to the availability of alternatives, making the decision path more similar to that of the "efficient quitting" subgroup above.

Yet what the two subgroups have in common—a key difference between them and group 1—is that the people in both quit without search. It is likely that an absence of search diminishes the accuracy with which people can assess either general labor market or individual labor market opportunities (Steel, 2002). Thus, the absence of search in group 2, and the consequently poorer labor market knowledge, leads us to expect a relatively weak (compared to group 1, which did search) effect of the unemployment rate on quit decisions in group 2. Similarly, the poorer labor market information should, when group 2 is compared to group 1, reduce the likelihood that satisfaction effects would depend on the unemployment rate.

Hypothesis 2b. In group 2, the negative relationship between the unemployment rate and voluntary turnover is weaker than in group 1.

Hypothesis 2c. In group 2, the interaction between job satisfaction and the unemployment rate in the prediction of voluntary turnover is weaker than in group 1.

Group 3: Individuals who accept unsolicited job offers (no search → new job → quit). These individuals received unsolicited job offers and quit to take those jobs. To the degree that this turnover group makes up a significant share of turnover (see footnote 1 above for such evidence), it poses a significant challenge to conventional satisfaction- and search-driven turnover models, which have all but ignored the unsolicited job offer path to turnover.

Hulin, Roznowski, and Hachiya suggested years ago that most workers "do not quit on the basis of probabilities estimated from alternatives available; they quit on the basis of certainties represented by jobs already offered" (1985: 244). Gerhart further pointed out that such offers "are often unexpected and unsolicited" (1990: 474). The implication then is that, in response to unsolicited job offers, not only may employees leave without actively searching for alternative jobs, but also that even relatively satisfied employees may choose to leave (Lee et al., 1999; Steel, 2002), as unsolicited offers are often compelling (or at least improved) opportunities. Indeed, Lee et al. (1999) reported that the mean satisfaction for the unfolding model's path 3, which includes this group, was higher than it was in the traditional turnover path (4b). However, their data included only leavers (no stayers), which precluded the testing of whether the relationship between satisfaction and turnover (i.e., the satisfaction effect) differed by path/group. Because it is common for those in this unsolicited offer group to have been relatively satisfied prior to receiving the alternative offers, we expect that satisfaction will be less predictive of turnover for group 3 than for groups 1 and 2. A small satisfaction effect should still emerge, however, as unsolicited offer recipients are more likely to accept such offers if they are less satisfied.

Hypothesis 3a. In group 3 (individuals who accepted unsolicited job offers), the relationship between job satisfaction and voluntary turnover is negative; this relationship is weaker in group 3 than in groups 1 and 2.

Note that the role of pull factors in this group is, by definition, highly important, as nothing is more of a pull factor than an alternative job offer. However, a traditional turnover design has little chance of being able to document this importance of pull factors, as typically measured by perceptions of movement ease. As Gerhart observed, an individual labor market can change quickly so that although "a person may perceive ease of movement to be low, an attractive job offer may nevertheless arise that results in turnover" (1990: 467) and that "under such circumstances, ease-of-movement perceptions will typically change too quickly to be captured with traditional measurement approaches" (1990: 474) (i.e., collection of turnover data six months to a year after collection of predictor data). Steel

(2002) likewise noted that such "static" designs are not well suited to studying the impact of any turnover causes that change over time and/or quickly. Actual offers have been referred to as "crystallization of alternatives" and have been found to relate only modestly to general ease of movement perceptions and to relate more strongly than these general perceptions to turnover (Griffeth et al., 2005).

Similarly, "average" indicators of job alternatives (e.g., the unemployment rate) likely also have limited predictive validity for this type of turnover. Employee raids/offers can take place even when job markets are relatively loose and, at the individual level, one can almost envision "a separate labor market existing for each person" (Gerhart, 1990: 467) that is a function not only of general labor market indicators such as the unemployment rate, but also of individual attributes (e.g., "movement capital" [Trevor, 2001]). The receipt of an unexpected job offer makes irrelevant any general labor market condition indicator like the unemployment rate. Thus, we expect that in this group defined by unsolicited offers, the unemployment rate, which is the traditional measure of job alternatives, will play less of a role than in group 1, where job search produces offers. Given that unemployment rate should matter little for this group, the job satisfaction by unemployment rate interaction should also be less likely to emerge in group 3 than in group 1.

Hypothesis 3b. In group 3, the negative relationship between unemployment rate and voluntary turnover is weaker than it is in group 1.

Hypothesis 3c. In group 3, the interaction between job satisfaction and unemployment rate in the prediction of voluntary turnover is weaker than it is in group 1.

Group 4: Individuals who quit for family-related reasons (quit → no new job → no search). This group consists of employees who quit because of pregnancy or for other family reasons. At the outset, it is important to note that a majority of women with small children are in the labor force. Nevertheless, it is also the case that women with small children are significantly less likely than other women to be in the labor force (U.S. Bureau of Labor Statistics, 2004). Thus, family issues continue to play a major role in the employment decisions of some women (and men). Lee and Maurer (1999) noted, for example (in keeping with the lower labor force participation of women with small children), that choices sometimes must be made regarding the time and energy devoted to work and family roles. Although some companies provide some form of child care assistance (or make

broader, more integrated attempts to introduce work-family flexibility and reduce quits [Batt & Valcour, 2003]), Lee and Maurer (1999) cited U.S. Bureau of Labor Statistics data indicating that this assistance is the exception rather than the rule. They argued that the roles of family and nonwork factors in general, although recognized (e.g., Mobley, 1977), have received too little attention in turnover theory and research, and that, in keeping with our general logic and that of the unfolding model, employee attitudes and cognitive processes may operate to influence turnover differently for those facing work-family choices.

The main difference between this family-related turnover group and the turnover groups discussed previously is that the focal attention here is not on the near-term transition to another job. Nonjob factors (e.g., pregnancy, transfer of spouse, health problem, etc.) may change the turnover decision process (Mobley, 1977), and the unfolding model allocates paths 1 and 2 to this type of voluntary leaver. Path 1 is initiated by a shock (e.g., pregnancy), but an individual on this path has a scripted action plan at hand. Path 2 is identical with path 1, except that employees do not have ready responses. In either case, these two paths in the unfolding model involve few, if any, of the key constructs associated with the decision process described by traditional turnover models. We thus hypothesize that, in terms of the two key variables in our study, voluntary leavers from this group will be significantly less affected than leavers who follow the traditional turnover path depicted by group 1.

Hypothesis 4a. In group 4 (individuals who quit for family reasons), the negative relationship between job satisfaction and voluntary turnover is weaker than it is in groups 1 and 2.

Hypothesis 4b. In group 4, the negative relationship between unemployment rate and voluntary turnover is weaker than it is in group 1.

Hypothesis 4c. In group 4, the interaction between job satisfaction and unemployment rate in the prediction of voluntary turnover is weaker than it is in group 1.

Table 1 summarizes all of our hypotheses.

DATA AND METHODS

Sample

The primary data source for the present study was the National Longitudinal Survey of Youth, 1979 Cohort (NLSY79), sponsored and directed by

TABLE 1
Summary of Hypotheses and Relationships to Paths in the Unfolding Model

Relationship with Turnover	Group 1 (Take Another Job): Path 4b	Group 2 (Look for Another Job): Paths 2 and 4a	Group 3 (Receive Unsolicited Job Offer): Path 3	Group 4 (Leave for Family Reasons): Paths 1 and 2
Job satisfaction → turnover	Yes	Yes	Weaker than groups 1 and 2	Weaker than groups 1 and 2
Unemployment rate → turnover	Yes	Weaker than group 1	Weaker than group 1	Weaker than group 1
Job satisfaction × unemployment rate → turnover	Yes	Weaker than group 1	Weaker than group 1	Weaker than group 1

the U.S. Bureau of Labor Statistics (BLS). We also obtained additional data from the BLS (the Current Population Survey and the NLSY79 "geocode"). The NLSY79 is a survey of a nationally representative sample of young men and women who were 14 to 21 years of age when first interviewed in 1979. The cohort was interviewed annually through 1994, and after 1994 the survey was put on a biennial schedule. The present study used the 1996, 1998, and 2000 surveys. The study window allowed us to capitalize on the new availability of unsolicited job offer questions in the 1996, 1998, and 2000 NLSY79 surveys. The present sample consisted of respondents who were interviewed in 1996 and provided information on their current or most recent jobs.[2] We excluded nonrespondents as well as those respondents who were self-employed, working in a family business, or serving in the armed forces. This left a possible sample of 6,366, which was reduced to a final sample of 6,198 after we dropped observations with missing data on key variables.[3] The age range in our data was 31 to 38 in 1996 and 35 to 42 by 2000. In the U.S. economy,

total employment (age 20 and over) was 124.4 million in 1996, with roughly 42 million, or about one-third, of that total falling into the 31 to 42 age group we used. In 1996 alone, 208 different three-digit industries and 312 different three-digit occupations, as defined by the SIC system and the *Dictionary of Occupational Titles* respectively, were represented.

Analytical Method

We used survival analysis, which is designed for use in modeling "time to event" data. (Primers on survival analysis are provided by Allison [1984] and Tuma [1982], and see Morita, Lee and Mowday [1993] for an explanation of survival analysis in the specific context of employee turnover research.) In studying turnover, we modeled the amount of time an employee "survived" with an employer prior to the focal event (quitting, or turnover) taking place. An important issue in studying survival time in an employee turnover context is "right-censoring," in which a study period ends before the event of interest occurs for all observations. A key advantage of survival analysis over traditional turnover research designs is its ability to handle this and other forms of censoring (see Morita et al., 1993). For instance, when group 1 (those who quit to take other jobs) is the subject of analysis, observations for individuals in other groups (involuntary leavers and voluntary leavers for other reasons) are treated as censored at the point of turnover. Unlike traditional regression models, however, survival analysis can utilize the information that individuals with a censored observation survived up to the point of censoring. Unless these censored observations are random with regard to model variables and relationships, failure to account for them can result in biased estimates (Morita et al., 1993; Sturman & Trevor, 2001), as described in Cook and Campbell's

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[2] An employment history for the reported job, with information on tenure, job characteristics, demographic characteristics, etc., was created for each subject. If a respondent had already left his or her job before the 1996 survey date, the inclusion of that respondent was based on whether all relevant information on the most recent job was reported. If a respondent reported a current job at the 1996 survey date, the individual was followed up to the date of turnover, or up to the date of the 2000 survey if no transition occurred.

[3] As some predictors (e.g., job satisfaction, unemployment rate, wage, age, etc.) change over time, the original data were reconfigured into multiple spells per person so that different values of time-varying predictors matched the periods of tenure corresponding to the dates of each interview, voluntary turnover, or censoring. The final data set contained 14,360 observation records (or spells) for the 6,198 persons. A maximum of one quit event (i.e., the first quit event reported during the study window) was observed for each respondent, which precludes po-

tential statistical complications associated with using repeated quit events.

(1979) discussion of nonrandom mortality as a threat to internal validity.

The above model amounts to what is called "a competing-risks model" in the survival analysis literature (e.g., Allison, 1984; Yamaguchi, 1991). Competing-risks models deal with situations of multiple types of events (competing risks), in which the occurrence of one type of event removes a person from the risk of all other types of events; the person will thus no longer contribute to the successive risk set. Given that different groups of voluntary leavers follow qualitatively different processes, we assumed that the turnover paths depicted above were independent of each other (i.e., we had an independent competing-risks model). The independence assumption allowed us to estimate separate event-specific survival models; it also allowed for an equality test of parameters including covariate effects across separate event-specific models (Narendranathan & Stewart, 1991).

Within the competing-risks framework, we primarily used a semiparametric proportional hazards model, also known as a Cox regression model (Cox, 1972; Morita et al., 1993; Morita, Lee, & Mowday, 1989). The hazard function of the model is given with $r(t, x) = h(t)\exp(\beta x)$ where $h(t)$ denotes a baseline hazard function, x is a vector of (time-dependent) covariates, and β is a vector of unstandardized regression coefficients. The baseline hazard can be interpreted as the general turnover probability, conditional on employee tenure. The model does not include assumptions about the time dependence of the baseline hazard $h(t)$ which, in fact, is not estimated (Kalbfleisch & Prentice, 1980).

The Cox model produces regression coefficients that can be used to determine the percent change in the hazard rate (i.e., probability of a turnover event here), given a unit change in the independent variable. To derive the percent change in the probability of turnover from an unstandardized Cox regression coefficient, we used the formula $[\exp(\beta) - 1] \times 100$. Thus, for example, a coefficient of −.50 would imply that a one-unit change in the independent variable is associated with a 39.3 percent decrease in turnover probability, whereas a coefficient of .50 would imply a 64.9 percent increase in turnover probability.

In addition, to better understand the shape of the hazard function, we also estimated a fully parameterized proportional hazards log-logistic model, as suggested by Brüderl and Diekmann (1995). This flexible model is given by the hazard function:

$$r(t, x) = b\frac{p(\lambda t)^{p-1}}{1 + (\lambda t)^p} \; . \tag{1}$$

Through each model parameter, b, p, and λ, covariates can be introduced to the model. Covariates introduced to the b parameter make the model a proportional hazards model, and the corresponding regression function is $b = \exp(\beta_0 + \beta x)$, where β_0 is the regression constant, x is a vector of (time-dependent) covariates, and β is a vector of coefficients. If no covariates are introduced to a parameter, only the constant is estimated. A scaling vector, λ, determines the temporal properties of the hazard function, and p is a shape parameter. If $p > 1$, the hazard function has an inverted U-shape; if $p \leq 1$, the hazard function is monotonically decreasing. As the model was fully parameterized, it allowed us to directly estimate individual turnover hazards for any given tenure. We hoped that a closer examination of the temporal properties of the turnover hazard would provide additional insights into the decision processes of distinct groups of leavers.[4]

Measures

Voluntary turnover. We used two questions in the NLSY79 to classify voluntary leavers into the four distinct groups:

Question 1 and its response options were, "What is the main reason you left your job? (1) layoff, (2) plant closed, (3) end of temporary or seasonal job, (4) discharged or fired, (5) program ended, (6) quit for pregnancy or family related reasons, (7) quit to look for another job, (8) quit to take another job, (9) quit for other reasons." Question 2 was, "Were you looking for work when you were offered this job?" (1 = "yes," 0 = "no"). If the response was yes, the interviewer asked follow-up questions regarding the nature of the job search. The three most common search activities were "contacted employer," "contacted friends/relatives," and "submitted a résumé."

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[4] In both cases, Cox and log-logistic models, the application of a proportional hazards model requires the hazard rates for varying values of the covariates to be proportional. We conducted two tests to confirm the assumption. The first test was interacting analysis time (tenure) with the covariates and verifying that the interacted variables did not have significant effects on the hazards, because the proportional hazards assumption is that the effects do not change with time except in ways that are already parameterized. The results did not reveal significant interactions, which conformed to the proportional hazards assumption. The second test is a graphical method (Andersen, 1982; Blossfeld & Rohwer, 2002). The resulting plots were also in support of the proportionality assumption.

Individuals who reported in question 1 that they had quit their jobs for reasons 6, 7, or 8 were classified as exhibiting voluntary turnover as defined in this study. Individuals who left to look for other jobs (reason 7) were assigned to group 2. Group 4 consisted of individuals who left for pregnancy or other family-related reasons (reason 6). If a person answered question 1 with reason 8, "quit to take another job," we then checked the answer to question 2. A person reporting looking for work when offered a job, which we defined as a solicited job offer, was assigned to group 1; if the individual was not looking when offered a job, a situation that we defined as an unsolicited job offer, the person was assigned to group 3. There were a total of 1,105 voluntary leavers in groups 1 through 4.

Individuals who had quit their jobs and answered question 1 with reasons 1 through 5 were classified as involuntary leavers (872 individuals, 14.1%). Thus, we considered observations for these individuals censored at the point of employment termination. Stayers (2,368 individuals, 38.2%), untraceable records (646 individuals, 10.4%), and individuals who quit for unreported reasons (1,207 individuals, 19.5%) were considered right-censored at the end of the study window, at the time their records became untraceable, or at the time they quit, respectively. Thus, censored observations accounted for 5,093 (82%) of the total of 6,198 persons in the sample, with the remaining 1,105 persons (18%) voluntarily quitting during the time frame of the study.

Job satisfaction. Global job satisfaction was measured as follows: "How do/did you feel about your job? Do/did you like it very much (3), like it fairly well (2), dislike it somewhat (1), or dislike it very much (0)?" Despite concerns about the potentially low reliability of a single-item measure, researchers have demonstrated the superiority of a single-item measure to a summated scale of "facet job satisfaction" when measuring overall job satisfaction (Scarpello & Campbell, 1983) and substantial convergent validity of a single-item measure with facet scales (Wanous, Reichers, & Hudy, 1997). A meta-analysis by Tett and Meyer (1993) reported the mean correlation between voluntary turnover and global job satisfaction to be −.27 for multi-item scales and −.16 for single-item scales. Thus, our use of a single-item scale likely attenuated observed relationships. However, as our hypotheses focus on the relative sizes of relationships (i.e., whether turnover groups differ), any attenuation should leave hypothesis tests unaffected.

Relevant unemployment rate. Following Trevor's (2001) approach, we created a yearly (combined) unemployment rate for each individual by using a linear combination of local and occupational unemployment rates in which weights were assigned on the basis of Boston's (1990) decision rule for assigning occupations to primary and secondary labor markets. Thus, the occupational unemployment rate was emphasized for occupations requiring specific skills, while the local unemployment rate was emphasized for occupations in the secondary labor market. The occupational unemployment rate at the three-digit occupational level and the local unemployment rate were based on the Current Population Survey and the NLSY79 geocode, respectively.

Control variables and tenure. We included a variety of control variables in view of their likely relevance and use in prior related research. Table 2 lists the control variables used and describes how we measured them. We also included tenure, a duration variable, in analyses.

RESULTS

Table 3 reports descriptive statistics and correlations for all the study's variables.

Hypothesis Tests

Table 4 displays the results of the competing-risks Cox proportional hazards models; all the reported coefficients are unstandardized. Table 5 adds the cross-product of job satisfaction and unemployment rate to the Table 4 models. As predicted in Hypotheses 1a and 2a, in the models given in Table 4, job satisfaction is negatively related to voluntary turnover probability for groups 1 and 2. Supporting Hypotheses 3a and 4a, the job satisfaction effect appears to be weaker in groups 3 and 4 than in groups 1 and 2. Wald chi-square tests of equality, reported in Table 6, provide statistical confirmation of this difference (with groups 1 and 2 both combined and held separate). For each group, we computed the percent change in the turnover hazard rate as a function of a one-unit increase in job satisfaction, using the formula $[\exp(\beta) - 1] \times 100$. The percent change is −56 percent for group 1, −55 percent for group 2, −24 percent for group 3, and −8 percent for group 4; for these results, see Table 7, which presents voluntary turnover characteristics by group. Thus, the effect of job satisfaction on the hazard rate is more than twice as large for group 1 (take another job) and group 2 (look for another job) as for group 3 (received unsolicited job offer)

TABLE 2
Description of Control Variables

Variable	Description
Tenure	Total tenure in weeks at each reported job. Used as duration time in the analyses.
Education level	The highest grade completed as of May in each survey year. Controls for differences in individuals' mobility due to different education levels (e.g., Cotton & Tuttle, 1986; March & Simon, 1958; Trevor, 2001).
Cognitive ability[a]	Scores in the Armed Forces Qualifications Test (AFQT) in the 1980 NLSY79 survey. Controls for differences in individuals' mobility due to different cognitive abilities (e.g., Dickter et al., 1996; Gerhart, 1990; Trevor, 2001).
Relative pay ratio[b]	An individual's current pay level relative to the expected pay level in the relevant job market defined by the respondent's three-digit occupation and individual characteristics. Serves as a partial indicator of the potential attractiveness or utility of alternative jobs (e.g., Blau & Kahn, 1981; Hom & Kinicki, 2001; March & Simon, 1958; Mobley et al., 1979; Parsons, 1973; Trevor, 2001; Viscusi, 1980).
Mean occupational pay	The mean pay level at each three-digit occupation calculated using the Center for People Stats (CPS) data. Controls for potential occupation-specific differences in turnover propensity (e.g., Trevor, 2001).
Labor market sector	A binary variable indicating whether a respondent's occupation belonged to the primary (coded 1) or secondary (coded 0) labor market (e.g., Boston, 1990; Trevor, 2001). Controls for potential labor market sector– (occupation)-specific differences in turnover propensity.
Weekly working hours	Usual hours worked per week. Controls for possible differences in turnover propensity due to full/part-time status (e.g., Hulin et al., 1985).
Residential area	A binary variable for a respondent's residence in a Standard Metropolitan Statistical Area (SMSA; coded 1) or non-SMSA (coded 0). Controls for possible differences in turnover propensity due to different geographical characteristics (e.g., Judge & Watanabe, 1995; March & Simon, 1958).
Employer size	The number of employees working at the current job location. Controls for possible differences in turnover propensity as a function of employer size, such as opportunities for internal transfer and visibility to external employers (e.g., March & Simon, 1958; Mobley et al., 1979).
Total number of jobs	The accumulated number of jobs a respondent had held during his/her working career. Controls for differences in turnover propensity due to each individual's inherent turnover propensity (e.g., job hopper [Judge & Watanabe, 1995]) or occupational characteristics.
Demographic variables	Control for possible differences in turnover propensity due to discriminatory employment practices, different occupational or job markets, and etc. that can be functions of demographics.
Sex	Coded 0 for male, 1 for female.
Race	Coded 0 for nonwhite, 1 for white.
Marital status	Coded 0 for nonmarried (i.e., never married, divorced, separated, etc.), 1 for currently married.
Age	Age as of each interview date.

[a] This test is a composite of four quantitative and verbal tests (arithmetic reasoning, numerical operations, word knowledge, and paragraph comprehension) and was conducted in the 1980 survey. Although there was no recent follow-up test for the NLSY79 sample, the cognitive ability construct has been reported to be stable over time (Gottfredson, 1986). The AFQT composite has a reliability over .90 (Bock & Moore, 1986).

[b] To calculate the individual relative pay ratio, we first used data from the CPS to compute a wage equation, by year, for each occupation in our study. The wage equations included education level, sex, race, age, and age squared as predictors. Then, using the estimated regression coefficients obtained, for each three-digit occupation and year, each individual's wage was predicted in our NLSY79 sample using each individual's values on these independent variables. This predicted wage can be interpreted as the mean wage an individual with certain characteristics (i.e., education, sex, age, and race) is expected to earn in the three-digit occupational job market in a specific year. Finally, the pay ratio measure was computed as the ratio of the actual wage reported in the NLSY79 for each year to the predicted wage that was calculated for each individual and year using the CPS data. An individual with a lower pay ratio is more likely to find a better-paying job in the external labor market, and thus more likely to leave than an individual with a higher pay ratio.

TABLE 3
Means, Standard Deviations, and Correlations[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Group 1 turnover	0.03	0.18																		
2. Group 2 turnover	0.01	0.11	−.02																	
3. Group 3 turnover	0.02	0.13	−.02	−.02																
4. Group 4 turnover	0.01	0.11	−.02	−.01	−.02															
5. Job satisfaction	2.28	0.75	−.15	−.10	−.02	−.00														
6. Unemployment rate	4.86	2.37	.01	.04	−.02	.00	−.05													
7. Pay ratio	1.08	0.64	−.05	−.05	−.01	−.02	.08	−.02												
8. Mean pay	540.15	223.08	.01	−.03	.03	−.04	.06	−.58	.02											
9. Education	13.23	2.38	.03	−.03	.02	.01	.06	−.41	.04	.39										
10. Cognitive ability	41.31	27.90	.04	−.04	.02	.01	.03	−.35	.11	.40	.57									
11. Sex	0.49	0.50	−.02	−.01	−.02	.09	.01	−.11	−.01	−.18	.06	−.03								
12. Age	36.16	2.79	−.03	−.03	−.01	−.06	.02	−.19	.03	.12	.04	.13	.01							
13. Marital status	0.58	0.49	.01	−.04	.02	.03	.07	−.11	.05	.15	.10	.19	−.05	.07						
14. Race	0.66	0.47	.03	−.01	.02	.01	.04	−.08	.05	.16	.10	.40	−.02	.02	.23					
15. Total number of jobs	9.71	5.46	.10	.06	.04	.03	−.05	.07	−.07	−.04	.06	.01	−.08	−.15	−.10	.05				
16. Size of employer	585.22	2,788.82	−.02	−.02	.01	−.01	.00	−.08	.05	.09	.09	.09	−.01	.01	−.03	.00	−.04			
17. Labor market sector	0.69	0.46	.01	−.03	.02	.01	.09	−.46	−.02	.52	.34	.32	.12	.03	.11	.15	−.00	.04		
18. Residential area	0.81	0.39	−.00	−.01	−.00	.02	.00	−.09	.11	.04	.09	.04	.00	−.01	−.05	−.09	.03	.06	.06	
19. Working hours	40.68	10.73	−.00	.01	.01	−.05	.01	−.05	.35	.23	.02	.04	−.30	.03	−.01	.02	.01	.00	.03	.01

[a] n = 14,360 spells (6,198 respondents); correlations with absolute values greater than .016 are significant at $p \leq .05$.
Definitions of groups: group 1, quit to take another job; group 2, quit to look for another job; group 3, quit to take an unsolicited job offer; group 4, quit for family-related reasons.
Statistics are based on spell data; thus, means and correlations depend on the number of spells per respondent; note that turnover indicators can take the value 1 only for the last spell of a respondent.

TABLE 4
Results of Competing-Risks Cox Regression Analysis: Main Effects by Turnover Group[a]

Models/Variables	Group 1: Take Another Job		Group 2: Look for Another Job		Group 3: Accept Unsolicited Job Offer		Group 4: Leave for Family Reasons	
	b	s.e.	*b*	s.e.	*b*	s.e.	*b*	s.e.
Job satisfaction	−0.82	.05***	−0.80	.08***	−0.27	.08***	−0.08	.10
Unemployment rate	−0.02	.03	0.06	.04	0.04	.04	0.04	.04
Pay ratio	−0.68	.13***	−1.44	.24***	−0.18	.13	−0.12	.15
Mean pay/100	−0.08	.03*	−0.10	.05	0.01	.04	−0.08	.05
Education	0.02	.03	−0.03	.04	0.03	.03	−0.04	.04
Cognitive ability	0.10	.02***	−0.02	.04	0.02	.03	0.11	.04**
Sex	−0.21	.10*	0.10	.17	−0.25	.14	1.96	.24***
Age	−0.17	.02***	−0.16	.03***	−0.13	.03***	−0.29	.03***
Marital status	0.22	.10*	−0.41	.16**	0.36	.14**	0.59	.17***
Race	0.02	.12	0.09	.17	0.06	.16	−0.06	.18
Total number of jobs	0.06	.01***	0.05	.01***	0.04	.01***	0.03	.01
Size of employer	−0.00	.00	−0.00	.00	0.00	.00	−0.00	.00
Sector	0.21	.13	−0.03	.18	0.39	.18*	0.14	.20
Residential area	0.05	.12	0.11	.18	0.01	.16	0.51	.22*
Weekly working hours	0.01	.01*	0.03	.01***	0.01	.01	−0.01	.01
Overall fit								
Log-likelihood (partial)	−3,105.39		−1,205.45		−1,736.60		−1,169.34	
Likelihood-ratio test (χ^2)	499.54***		243.65***		81.12***		253.78***	
Pseudo-R^2_m	.08		.04		.01		.04	

[a] n = 14,360 spells (6,198 respondents); coefficients are unstandardized; pseudo-R^2_m for a single-risk model (turnover groups combined) = .106; pseudo-R^2_m for the overall competing-risks model (turnover groups not combined) = .160.

    * $p \leq .05$
   ** $p \leq .01$
  *** $p \leq .001$

and more than six times as large as for group 4 (had family reasons for leaving).

Turning back to Table 4, one can also see that the coefficient on unemployment rate fails to reach statistical significance in all turnover groups. In addition, Table 6 indicates that there are no differences among the turnover groups in the magnitude of the unemployment rate coefficient. Thus, no support was found for Hypotheses 1b, 2b, 3b, and 4b. Table 5 shows that the cross-product of job satisfaction and the unemployment rate reaches statistical significance in group 1, which is consistent with Hypothesis 1c. Specifically, when the unemployment rate is one standard deviation below the mean (i.e., 2.49%), the job satisfaction coefficient becomes −.90, which means that a one-unit increase in job satisfaction is associated with a 59 percent decrease in the turnover hazard rate (i.e., [exp(−.90) − 1] × 100 = −59%). In contrast, when the unemployment rate is one standard deviation above the mean (i.e., 7.23%), the job satisfaction coefficient becomes −.71, which means that a one-unit increase in job satisfaction is associated with a 51

percent decrease in the turnover hazard rate. However, as Table 6 indicates, no support was found for Hypotheses 2c, 3c, and 4c, which predict that the coefficient on the cross-product of job satisfaction and unemployment rate will differ for the different turnover groups.

Group Differences in Model Fit

Given the empirical support for the hypothesized differential predictive validity of job satisfaction, it was of interest to us to see how this finding might affect the degree to which overall model fit differed among the turnover groups (see Table 4). Both estimates of model fit that we used, the likelihood-ratio test statistic and the pseudo-R^2_m, a variance-explained analogue for competing-risks (and single-risk) models (Maddala, 1983; Schemper, 1992), differed over the groups, with model fit in group 1 (take another job) and group 2 (look for another job) better than in group 3 (get unsolicited job offer). Although model fit for group 4 (leave for family reasons) is similar to that for group 2, it appears

TABLE 5
Results of Competing-Risks Cox Regression Analysis: Main Effects and Interaction of Job Satisfaction and Unemployment Rate by Turnover Group[a]

Models/Variables	Group 1: Take Another Job		Group 2: Look for Another Job		Group 3: Unsolicited Job Offer		Group 4: Family Reasons	
	b	s.e.	*b*	s.e.	*b*	s.e.	*b*	s.e.
Job satisfaction	−1.00	.10***	−0.93	.19***	−0.36	.17*	−0.21	.22
Unemployment rate	−0.08	.06	−0.00	.09	−0.02	.11	−0.04	.14
Job satisfaction × unemployment rate	0.04	.02*	0.02	.03	0.02	.03	0.03	.04
Pay ratio	−0.68	.13***	−1.44	.24***	−0.18	.13	−0.12	.15
Mean pay/100	−0.08	.03*	−0.10	.05	0.01	.04	−0.08	.05
Education	0.02	.03	−0.03	.04	0.03	.03	−0.04	.04
Cognitive ability	0.10	.02***	−0.01	.04	0.02	.03	0.11	.04**
Sex	−0.21	.10*	0.09	.17	−0.25	.14	1.95	.24***
Age	−0.17	.02***	−0.16	.03***	−0.13	.03***	−0.29	.03***
Marital status	0.23	.10*	−0.40	.16*	0.37	.14**	0.59	.17***
Race	0.02	.12	0.09	.17	0.06	.16	−0.06	.18
Total number of jobs	0.06	.01***	0.05	.01***	0.04	.01***	0.03	.01
Size of employer	−0.00	.00	−0.00	.00	0.00	.00	−0.00	.00
Sector	0.20	.13	−0.03	.18	0.39	.18*	0.13	.20
Residential area	0.05	.12	0.12	.18	0.01	.16	0.51	.22*
Weekly working hours	0.01	.01*	0.03	.01***	0.01	.01	−0.01	.01
Overall fit								
Log-likelihood (partial)	−3,103.46		−1,205.09		−1,736.40		−1,169.14	
Likelihood-ratio test (χ^2)	503.40***		244.20***		81.53***		254.18***	
Pseudo-R^2_m	.08		.04		.01		.04	

[a] n = 14,360 spells (6,198 respondents); coefficients are unstandardized.

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

that, as expected, demographic variables, rather than job satisfaction, primarily drive fit in group 4.

Further evidence of differences in the four turnover groups' fit (based on the Table 4 results) comes from comparing values of pseudo-R^2_m for a single-risk model and our competing-risks model. In the single-risk model, quits from the four different turnover groups are combined into a single group (pseudo-R^2_m = .106); in the competing-risks model, estimation is separate for each turnover group (pseudo-R^2_m = .160). This difference indicates that variance explained is 51 percent higher (i.e., .160/.106) when the distinct paths for each of the four turnover groups are incorporated using the competing-risks model.[5] Thus, modeling the four turnover groups separately results in better explanatory power than

combining them. The difference in job satisfaction coefficients across groups, in combination with the fact that overall model fit also differs across groups, suggests that the central role given to job satisfaction in traditional turnover models is better warranted for explaining some types of turnover than others.

Table 7, in addition to summarizing the differential effects of job satisfaction in the various turnover groups, provides descriptive statistics useful in understanding the relative sizes of the four turnover groups and their characteristics. The first row shows that of a total of 1,105 turnover events modeled in our study 40 percent (254 + 184 = 438) were in group 3 (unsolicited job offer) or group 4 (family-related reasons). Thus, not only is model fit relatively poor for, and job satisfaction less predictive of, turnover for these groups, but also, nearly half of the voluntary quits fall into these groups.

Table 7 also shows that group 3 (unsolicited job offer) had a relatively high job satisfaction mean, as well as the highest percentage of respondents

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[5] A pseudo-R^2 cannot be directly compared to an R^2 because the two statistics are constructed differently. For example, in most cases, the maximum value of a pseudo-R^2 is less than unity.

TABLE 6
Results of Equality Tests across Groups

| | Likelihood-Ratio Tests: Equality of All Parameters[b] | Wald Likelihood-Ratio Tests: Equality of Coefficients on . . . | | | |
| | | Job Satisfaction[c] | Unemployment Rate[c] | Job Satisfaction × Unemployment Rate[d] | Job Satisfaction/ Unemployment Rate/ Job Satisfaction × Unemployment Rate[e] |
Comparison Groups[a]	$\chi^2(16)$	$\chi^2(1)$	$\chi^2(1)$	$\chi^2(1)$	$\chi^2(3)$
1 and 2 versus 3	1,174.58***	36.82***	0.02	0.11	41.41***
1 and 2 versus 4	1,136.52***	47.05***	0.02	0.03	53.56***
1 and 2 versus 3 and 4	1,663.43***	71.44***	0.05	0.05	77.71***
1 versus 2	855.64***	0.04	0.84	0.19	0.93
1 versus 3	1,014.86***	34.79***	0.23	0.21	38.03***
1 versus 4	1,003.32***	45.21***	0.17	0.07	49.71***
2 versus 3	710.51***	23.48***	0.16	0.00	24.94***
2 versus 4	727.25***	33.61***	0.13	0.00	36.26***

[a] Group 1, quit to take another job; group 2, quit to look for another job; group 3, quit to take an unsolicited job offer; group 4, quit for family-related reasons.

[b] Test statistic based on Narendranathan and Stewart (1991: 335).

[c] Wald tests for the equality of the main job satisfaction and unemployment rate effects for paired groups; i.e., models did not include interaction effects of job satisfaction and unemployment rate (see Table 4 for main effect coefficients on job satisfaction and unemployment rate).

[d] Wald tests for the equality of the interaction effect of job satisfaction and unemployment rate for paired groups; interaction effect models (see Table 5 for coefficients).

[e] Likelihood-ratio tests for the joint equality of the coefficients of job satisfaction, unemployment rate and job satisfaction × unemployment rate for paired groups (see Table 5 for coefficients).

*** $p \leq .001$

in managerial/professional occupations and working full time. Group 4 (family-related reasons) had the highest job satisfaction mean and was predominantly composed of women, many of whom worked in service-related jobs and/or part-time.

Group Differences in Hazard Function Shapes: Additional Analyses

The above results indicate important differences in both model fit and the impact of job satisfaction for the groups, especially when groups 1 and 2 are compared with groups 3 and 4. In this section, we explore whether there are also differences in the shapes of hazard functions (turnover hazard plotted against tenure) in the various groups.

The notes in Figure 1 report the log-logistic estimates of the parameters describing the shape of the hazard function in each group. Using these estimates and mean values of the covariates, Figure 1 depicts the hazard functions of the four groups of voluntary leavers. As must be the case, the absolute levels of the single hazard functions vary according to the number of turnover events observed. The p parameters for groups 1 and 3 are significantly different from unity, thus indicating inverted

U-shaped turnover hazard functions. In contrast, p is greater than but not significantly different from unity for groups 2 and 4, indicating that the hazard functions for these groups have a more or less monotonically decreasing shape. Correspondingly, for groups 1 and 3, the hazard functions peak after 112 and 97 weeks, respectively, and the peaks occur after 25 and 13 weeks for groups 2 and 4. The turnover hazards for groups 1 and 3 increase considerably after organizational entry.

For group 1 (take another job), a possible explanation is that these individuals experience some degree of job dissatisfaction (or mismatch) after organizational entry. Motivated by dissatisfaction, they go through a deliberate process of deciding whether to stay or quit, which includes searching for alternative opportunities. During this decision process, the turnover hazard increases as alternatives open up. Interestingly, group 3 (get unsolicited offer) has a hazard function similar to that for group 1, even though our earlier analyses demonstrated important differences in other respects. It may be that group 3 individuals are especially visible to other employers because of high performance and/or promotion rate (Trevor et al., 1997). If so, it likely

TABLE 7
Voluntary Turnover Characteristics by Groups

Characteristics	Group 1: Take Another Job	Group 2: Look for Another Job	Group 3: Unsolicited Job Offer	Group 4: Family Reasons
Frequency n (percentage of 6,198 respondents)	479 (7.7%)	188 (3.1%)	254 (4.1%)	184 (3.0%)
Coefficient on job satisfaction[a]	−.82***	−.80***	−.27***	−.08
Hazard ratio (change of turnover hazard)	.44 (−56%)	.45 (−55%)	.76 (−24%)	.92 (−8%)
Mean levels at the time of turnover				
Job satisfaction	1.68	1.62	2.15	2.26
Pay ratio	0.92	0.81	1.03	0.98
Occupation (%)				
Managerial and professional specialty	30.7	21.0	35.1	24.5
Technical, sales, administrative support	29.6	27.4	32.3	38.6
Services	14.5	17.2	10.4	22.8
Precision production, craft, and repair	10.1	11.3	12.4	4.4
Operators, fabricators, and laborers	14.3	20.4	9.6	9.2
Farming, forestry, and fishing	0.8	2.7	0.4	0.5
Labor market sector (%)				
Primary	71.4	55.6	77.2	72.3
Full-time vs. part-time status (%)[a]				
Full-time	85.5	78.5	87.3	70.1
Sex (%)				
Male	57.4	55.0	59.1	12.0
Marital status (%)				
Married	60.1	39.2	65.8	69.0
Race (%)				
White	72.9	63.0	72.1	70.7

[a] The coefficients are from Table 4.

takes time for this success to occur and be observed, which is consistent with occurrence of the hazard rate peak at 97 weeks. For both groups 1 and 3, the hazard functions peak and largely stay at a relatively high level.

Group 2 (look for another job) and group 4 (leave for family reasons) have differently shaped hazard functions in that the turnover hazard shows an overall monotonically decreasing shape. However, the average slope is small, indicating a more or less constant hazard function. For group 2, a plausible explanation is that if these individuals experience mismatch at any point after organizational entry, they do not delay their turnover decisions to first search for alternatives. Group 4 individuals may quit in response to a non-job-related shock as defined by the unfolding model of turnonver (e.g., pregnancy), which can occur at any time during their tenure with an organization. In sum, inspection of the hazard functions provides further evidence of turnover group differences.

DISCUSSION

Since March and Simon's (1958) seminal work, considerable effort has been devoted to elaborating and testing their model of voluntary employee turnover. There is a sense, however, that new ideas and approaches are needed to move the field significantly forward (Griffeth et al., 2005; Lee & Mitchell, 1994; Lee et al., 1999; Steel, 2002; Maertz & Campion, 2004). In response, we built on newer conceptualizations to advance treatments of March and Simon's fundamental perceived desirability and ease of movement constructs.

First, we built on the important idea from the unfolding model of turnover (Lee et al., 1999; Lee & Mitchell, 1994) that there are multiple distinct paths to employees' leaving jobs and that one of the crucial ways in which these paths are likely to differ is in the role of job (dis)satisfaction. On the empirical front, we were able to bring to bear a large, national sample of stayers and leavers of different types, which allowed us to go beyond previous unfolding model work by providing the first quantitative estimates of how the level of job satisfaction was differentially predictive of the probability of turnover in different turnover groups. Consistently with the unfolding model, these differences were substantial. We found that the satisfaction effect on turnover for group 1 (those quitting after successfully searching for other jobs), the focus of most standard

FIGURE 1
Hazard Functions for Distinct Turnover Groups[a]
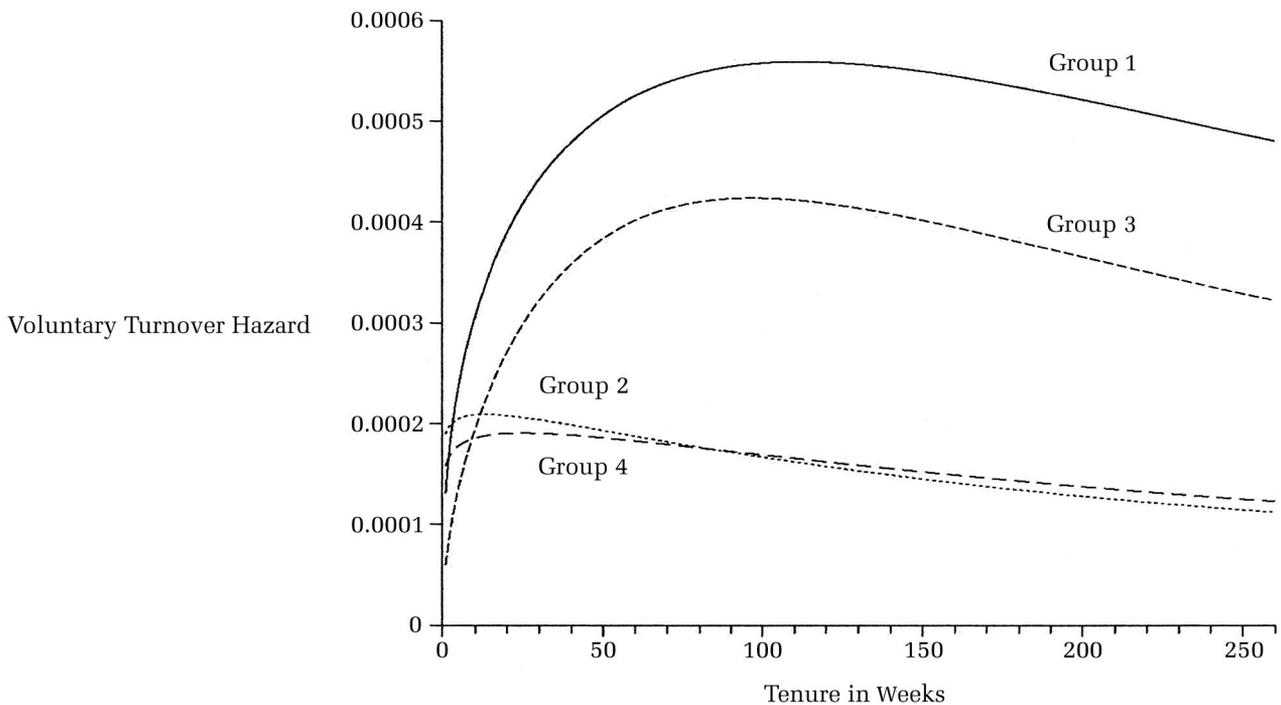
ª Parameter estimates from proportional log-logistic hazard models for four groups are shown (*b*-values were obtained by using mean values of the covariates; p and λ values are estimates of the vector constants; interaction effect models):

  Group 1: $b = 0.0007^{***}$, $p = 1.38^{***}$, $\lambda = 0.004^{***}$, $r(t_{max}) = 0.0006$, $t_{max} = 111.92$
  Group 2: $b = 0.0002^{***}$, $p = 1.08$, $\lambda = 0.004^{***}$, $r(t_{max}) = 0.0002$, $t_{max} = 24.93$
  Group 3: $b = 0.0005^{***}$, $p = 1.52^{**}$, $\lambda = 0.007^{***}$, $r(t_{max}) = 0.0004$, $t_{max} = 96.62$
  Group 4: $b = 0.0002^{***}$, $p = 1.06$, $\lambda = 0.005^{***}$, $r(t_{max}) = 0.0002$, $t_{max} = 13.08$

  Above, $t_{max} = \frac{1}{\lambda}(p - 1)^{\frac{1}{p}}$ is the time of the maximum hazard and $r(t_{max}) = b(p - 1)^{\frac{p-1}{p}}$ is the maximum hazard at t_{max} (Brüderl & Diekmann, 1995).

  The log-logistic model estimates (β) are virtually identical to the ones obtained from the Cox regression. For reasons of parsimony, we only report the general model parameters that inform about the individual turnover hazards. Unreported results can be obtained from the authors.

dissatisfaction-driven turnover models, was over twice as large as the satisfaction effect for group 3 (those leaving in response to unsolicited job offers) and about seven times as large as for group 4 (those leaving because of family reasons). The fact that groups 3 and 4 accounted for nearly half of all turnover in our national sample suggests that a lack of fit to the standard turnover model is more the rule than the exception and is a fact that turnover scholars must acknowledge.

Second, our framework highlighted the possible importance of unsolicited job offers in the turnover process and in supporting the ease of movement part of the March and Simon (1958) model. Pull factors in turnover decisions have long been a puzzle because of the apparent lack of strong empirical support for this aspect of the model. Specifically, the fact that 23 percent of turnover in our sample occurred not because of search (dissatisfaction-

induced or otherwise), but rather because of unsolicited job offers, provides compelling evidence that pull factors are indeed an important factor in turnover decisions. This striking finding, which confirms our earlier interpretation of Holtom et al. (2005) as suggesting the importance of unexpected offers, and is consistent with notions such as a "war for talent" and "employee raiding," highlights an enormous gap in understanding of turnover behavior. Thus, although measures of general labor market conditions (e.g., the unemployment rate) or perceptions of ease of movement may not be highly predictive of turnover, a more immediate and tangible indicator of ease of movement—whether an unsolicited job offer has been received—appears to play a major role. Accordingly, we advocate that future turnover research in the March and Simon (1958) tradition build on our unsolicited job offer results to incorporate this apparently powerful pre-

dictor into ease of movement conceptualizations and predictions. Such an approach to unsolicited offers links the unfolding model to the traditional March and Simon perspective in a manner that should help scholars to better explain why employees quit.

Although we believe that receipt of an unsolicited job offer is strong evidence for the ease of movement construct, we also wish to comment on the lack of support for the more traditional measure of ease of movement, the unemployment rate. Earlier, we noted that there is evidence of strong relationships between unemployment rates and turnover at aggregated levels of analysis (e.g., Armknecht & Early, 1972; Eagly, 1965) but that results are mixed at the individual level (Trevor, 2001). In examining our own failure to find individual-level support for the effect, we believe it is very important to note that both the level of and the variation in the national unemployment rate during the time period of our study were quite low by historical standards.[6] This observation suggests that jobs were relatively plentiful throughout our study window, and this restriction in range may have limited our ability to find an unemployment rate effect. The restricted range may also have played a role in our only finding partial support for the hypothesized job satisfaction by unemployment rate interaction.

The common theme of many turnover models is that the level of unemployment helps determine whether job dissatisfaction can be translated into turnover. Given the low unemployment rates during our study window, it seems likely that in the economy as a whole, job availability was high, allowing job dissatisfaction (especially for our turnover groups 1 and 2) to significantly affect turnover. Thus, in keeping with standard turnover models, the state of the labor market during the time period of a study may well influence the link between job dissatisfaction and turnover. Hence, in line with our finding of the importance of unsolicited job offers, we believe

there is good reason to believe that ease of movement and labor market conditions do play an important role in turnover decisions.

Practical Implications

To be able to exercise control over turnover in an organization, one must first determine the relative importance of the different turnover paths. For instance, if groups 1 (take another job) and 2 (look for another job) capture the main types of voluntary turnover in the organization, then the traditional focus on monitoring and influencing job satisfaction likely makes sense. In contrast, this strategy may be considerably less effective for group 3 (unsolicited job offer). Receiving an unsolicited job offer without active job search may indicate that group 3 individuals are highly visible (Allen & Griffeth, 2001) to external employers because of either their performance or rate of promotion (Trevor et al., 1997). Griffeth and Hom (1995) suggested that "high performers" are expected to be pulled away from their jobs by factors unrelated to job satisfaction level. In a similar vein, Dickter, Roznowski, and Harrison argued that although "job satisfaction typically has a key role as mediator between antecedent conditions and turnover, individuals who are excellent job candidates in their field may quit one satisfying job and easily move on to the next" (1996: 707). The implication, then, is that each organization must decide if it can or should work to preempt raids by other employers (e.g., by proactively adjusting salaries, managing careers/promotion opportunities, etc.). The fact that unsolicited job offer shocks are hard to see in advance perhaps magnifies the importance of such strategies and also raises the question of whether organizations would be well served to develop additional systems that more systematically and proactively seek out information about alternative offers. Finally, if an organization's turnover is due largely to family-related reasons (group 4), our results suggest that job dissatisfaction is unlikely to be a key driver. To reduce turnover in this group, an organization must consider its policies with respect to work-family coordination (e.g., child care, flexible work schedules, telecommuting/work-at-home arrangements). In summary, different types of turnover likely require different types of retention strategies.

Limitations

The present study has a number of potential limitations. First, although we believe our study provides important evidence regarding the unfolding

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[6] Specifically, according to Bureau of Labor Statistics data, the national unemployment rate during the 20 years (1976–95) preceding our study had a mean of 6.9 (s.d. = 1.2). In contrast, during the period of our study (1996–2000), the unemployment rate had a mean of 4.6 (s.d. = 0.56). Thus, relative to the previous 20 years, the unemployment rate was one-third lower during our study, and the variation in that level was less than one half. Cohen's *d*-statistic (Cohen, 1988) revealed that the mean unemployment rate during the period of our study was 2.1 (pooled) standard deviations lower than during the preceding 20 years. (Note that Cohen's rule of thumb is that a *d* of .80 or greater is "large.")

model (Lee & Mitchell, 1996), it is not a test of the full model, which includes a broader range of types of shocks and paths to turnover, as well as a deeper treatment of their complexities and nuances. Second, in some cases, data in our sample were only measured biennially. This schedule does not pose any problems in the case of time-constant variables, but the assumption of stability over time may be unrealistic for some of the time-dependent variables. Third, as noted earlier, our use of a single-item measure of job satisfaction may have attenuated observed relationships. Our hope is that any such attenuation would not significantly affect turnover group differences in model fit and regression coefficients, our primary focus.

A fourth possible limitation has to do with our measurement of the turnover criterion variable. For example, if individuals anticipate being fired, they might choose to "voluntarily" quit to avoid the stigma of firing. Conversely, individuals who want to quit might arrange to be fired in order to collect unemployment insurance (Allison, 1984). Moreover, multiple reasons may be involved in the same turnover decision process (e.g., job dissatisfaction and family-related reasons). In a similar vein, Lee et al. (1999) noted the existence of hybrid turnover paths (paths followed by individuals who switched from one type to another along the way). Those conducting future research may wish to consider the implications of this measurement issue.

A fifth issue concerns the external validity of our sample. On the one hand, our sample was restricted to people between the ages of 31 and 42. It is certainly the case that turnover rates are higher for younger workers, as well as for older workers near retirement age. However, the age range included in our national sample accounts for about one-third of U.S. employment and includes over 200 different industries and over 300 different occupations. Thus, the overall external validity of our sample is a clear strength.

A sixth area of concern has to do with the possibility of method variance or social desirability bias in measuring some variables. For example, the reason given for turnover by a respondent may reflect a lack of self-insight and/or striving for social desirability. However, relative to the case in which turnover reasons are given in an exit interview to an employer (where there may be a concern, for example, about not "burning bridges"), we believe that the nature of the interview process (e.g., its research purpose) used here to collect the data may make this problem less likely. Finally, although our study was able to model the probability of four different turnover reasons, there are clearly other reasons for quitting that we were unable to capture (e.g., to start a business, or to respond to early retirement incentives).

Future Research

Contrary to the heavy focus on job dissatisfaction, and subsequent job search, in theoretical and empirical turnover research, our study, supporting the unfolding model (e.g., Lee & Mitchell, 1994), demonstrates that a large number of quits result from unsolicited job offers and family concerns. Such work-family issues, including relevant retention-enhancing human resource practices, have received significant research attention. Very little academic work, however, has been conducted in the case of those leaving in response to unsolicited offers. What is it that makes individuals the targets of recruiting or raiding efforts by other employers? At present, the literature provides no answer to this question, as, despite an emphasis on search by employees, virtually nothing is known about search by firms. This appears to be a critical gap in the literature, given the incidence of turnover driven by unsolicited offers in our study. Similarly, Rynes, Orlitsky, and Bretz (1997), who found that over 60 percent of positions requiring a college degree were filled by hiring experienced people rather than through college recruiting, noted the need to examine the role of "the explosive growth of certain intermediaries [such as] private search firms" in such hiring (Rynes et al., 1997: 26). Whether search is initiated by a firm or its intermediary, the important matter of what makes an outside employee a likely target probably involves both individual attributes/achievements (Bretz, Boudreau, & Judge, 1994; Trevor, 2001; Trevor et al., 1997) and firm and occupation attributes (e.g., visibility, observability). The next question, also in need of attention, is what it takes to retain an employee for whom an unsolicited job offer, rather than dissatisfaction, is the primary driver of considering turnover.

Finally, our study provided exploratory analyses comparing the shape and timing of the turnover hazard function and how it differed across groups. The unfolding model has offered a general hypothesis that the length of the decision processes differs among distinct groups (Lee & Mitchell, 1994). In general, the parametric models we estimated and the corresponding hazard functions supported this notion. For different groups, there may also be changing relationships between predictors and turnover over time. For example, previous research (Dickter et al., 1996; Hom & Griffeth, 1991) has suggested that predictors may be more strongly associated with turnover at some points in tenure

than at others. However, more research and direct evidence on this issue are needed.

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