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# **The Ecological Dynamics of Careers: The Impact of Organizational Founding, Dissolution, and Merger on Job Mobility<sup>1</sup>**

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This article unites social mobility and organizational ecology research and develops an ecological theory of career mobility. The vital events of organizational populations (founding, dissolution, and merger) cause substantial shifts in populations of employing organizations and jobs, thereby greatly altering opportunity structures. Founding creates jobs; dissolution and merger destroy jobs. These processes have strong direct effects on employees in new and failed organizations. Moreover, these processes have strong indirect effects on employees in other organizations, which can be best understood by extending vacancy-chain models to encompass industry dynamics. Analysis of job mobility in one industry generally supports the theory.

People change jobs frequently over the course of their work lives. Studies conducted at Ohio State University estimated that 7%–23% of American workers shift employers in any given year (e.g., Parnes et al. 1970; Parnes, Egge, and Andrisiani 1973). Hall (1982) estimated that over 28% of American workers held their current jobs one year or less; this figure implies an overall job-shift rate—including both within- and between-firm moves, but not counting entries into the labor force—of about 25%

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per year. To explain these job shifts, most research has focused on individual attributes, such as education and workforce experience (e.g., Blau and Duncan 1967; Featherman and Hauser 1978), or on the features of employing organizations, such as firm size and technology, the development of internal labor markets (ILMs), and industrial sector (e.g., Doeringer and Piore 1971; Baron and Bielby 1980). We propose that a new and hitherto ignored set of factors can explain much of the variation in individual career movement. The vital processes of employing organizations—founding, dissolution, and merger—have strong effects on the career paths of individual employees. This proposition grows out of the speculations of Hannan (1988) and of Carroll, Haveman, and Swaminathan (1992). It builds on the modest empirical evidence we have concerning the relationship between industry dynamics and individual career outcomes (e.g., Roos 1978; U.S. Small Business Administration 1983; Birch 1987; Leonard 1987; DiPrete 1993). Using aggregate data from studies of labor-market dynamics, Carroll et al. (1992) estimated that job shifts caused by organizational founding and failure processes constitute 25%–55% of all individual mobility; moreover, they argued that these processes account for virtually all downward movement, which generally occurs in job shifts from one firm to another. Given this evidence, there is a clear need to investigate further the link between industry dynamics and individual job shifts.

The research agenda pursued here is explicitly dynamic and nonequilibrium, in contrast to the static, equilibrium approaches that constitute the bulk of previous research on careers. Although the dependent variable in much previous research has been change in employment status or earnings, the independent variables representing the structure of labor markets have been, for the most part, static: they reflect labor-market structure in the cross section or at equilibrium, not change in this structure. Two emerging streams of research examine the impact of labor-market dynamics on career processes. One branch examines the effects of change in existing organizations: organizational growth and contraction (e.g., Stewman and Konda 1983; Rosenbaum 1979), technological innovation (e.g., Mark 1987; Hedström and Wallin 1988), and the evolution of jobs over time (e.g., Miner 1990, 1991). Such research recognizes that jobs are created and destroyed, although it implicitly takes an adaptationist perspective and assumes that organizations are permanent fixtures in labor markets. A second branch goes further by taking a selection perspective and studying the large-scale processes that drive the founding and failure of entire organizations and, therefore, the creation and destruction of their constituent jobs. Research on the impact of modernization and industrial turbulence (e.g., Blossfeld 1986; Birch 1987; DiPrete 1993) recognizes that not only do employing organizations change over

time, they are born and die. Our article extends this selectionist and fully dynamic research program by tying industry dynamics directly to the creation and destruction of jobs that occurs when employing organizations are founded and fail, thereby tying industry dynamics directly to career processes.

This article's emphasis on industry dynamics links the study of careers in organizations to a thriving research stream in organization theory, organizational ecology (Hannan and Freeman 1989). There has been some call for theoretical analysis and empirical investigation to link these two subjects. Stewman (1988, pp. 180–81) recognized the potential for complementarity: "To date, organizational ecologists have focused on organizational death rates but have not been informative about the impacts on jobs or persons. A natural extension would be to specify further the concomitant job death rates, thus tying together micro and macro processes." In a similar vein, in his study of changing labor-market structures in Germany, Blossfeld (1986, p. 223) asserted that "the creation of vacancies and the loss of positions in the course of structural change is the central mechanism of career mobility." Organizational founding and failure are core elements of social-structural change (Hannan and Freeman 1989) and thus are major forces driving the creation and destruction of jobs. Structuralist models of career mobility can be enriched by incorporating the processes of organizational evolution that create and destroy jobs.

This article accomplishes a second important task. It brings to light a new set of phenomena for empirical investigation by organizational ecologists. We expand the scope of research in organizational ecology to encompass more than just population processes such as rates of organizational founding, failure, and change. We move closer to achieving one of the original goals of organizational ecology, namely, to bring the study of organizations back into the mainstream of sociology by reorienting research on organizations so that it speaks to fundamental problems of social organization and social change (Hannan and Freeman 1989, pp. 1–44). The ecological paradigm is well suited to address the question of how macro social structure influences micro outcomes through the medium of formal organizations (McPherson 1983).

The next section reviews previous sociological research on career mobility, focusing on studies that investigate how the dynamics of socioeconomic structures influence the opportunity structures facing individuals and, hence, their career paths.<sup>2</sup> We then examine the literature on organi-

<sup>2</sup> We do not review the vast literature on the impact of individual characteristics (e.g., sex, race, education, and family background) or organizational characteristics and dynamics (e.g., size, technology, and growth) on mobility and socioeconomic attainment. For a recent review, see Rosenfeld (1992).

zational ecology as it pertains to labor-market dynamics and develop an ecological theory of career mobility that links the evolution of organizational populations to shifts in populations of jobs and thus to individuals' career paths. Next, we describe the site of this study (managerial jobs in the savings and loan industry in California) and explain the models we estimate. After presenting and interpreting results, we discuss the implications of our findings for research on career mobility and organizational ecology.

#### STRUCTURAL DYNAMICS AND CAREER MOBILITY

A career has typically been defined as a sequence of jobs held by an individual, with associated status and financial rewards. We do not use the term *career* prescriptively to denote an orderly sequence of development and upward mobility (cf., Wilensky 1961; Slocum 1966). Instead, our usage follows that of Spilerman (1977); it is descriptive and encompasses work histories that do not exhibit an orderly, progressive pattern within one organization. Sociological research on careers has generally focused on the shifts in jobs that constitute a career (Rosenfeld 1992). Consistent with this approach, in this article we study rates of job mobility, both within and between employing organizations.

Structural research on career mobility can be classified according to the degree to which it admits that the opportunity structures facing individuals change over time. Most studies assume that employing organizations are permanent fixtures and that jobs are stable. Hence, they view opportunity structures as static or at equilibrium. Some studies allow that jobs are created and destroyed through such processes as organizational growth and decline, technological innovation, or the social evolution of jobs (e.g., Stewman and Konda 1983; Hedström and Wallin 1988; Miner 1991). Here, opportunity structures are viewed as being somewhat dynamic, since the population of jobs changes, although the population of employing organizations is stable. Finally, a small but growing number of studies recognize that employing organizations are born and die, causing the wholesale creation and destruction of jobs (e.g., Blossfeld 1986; DiPrete 1993; Korn and Baum 1994). These studies treat opportunity structures as entirely dynamic, because they recognize that the population of employing organizations changes over time.

Trends in economic and social systems have been linked to social mobility in several studies. Blossfeld (1986) and Sørensen and Blossfeld (1989) linked the career attainment of German males from three birth cohorts to movement along the path of modernization and the cyclical development of labor markets. Historical changes in the structure of the German labor market since World War II had strong effects on career

mobility. In a related study, Allmendinger (1989) traced how economic and political developments in Norway, the United States, and West Germany between 1930 and 1970 affected the career trajectories of men born around 1930. Her primary focus was cross-national comparison; however, she investigated one economic trend variable, yearly change in GNP, and found that increases in GNP signaled favorable labor-market conditions and stimulated mobility rates. Similarly, DiPrete (1993) showed that changes in the labor-market structure of the United States during the last decade, specifically industry growth, contraction, and reorganization, influenced rates of unemployment and mobility within and across employing organizations. All of these studies are very macroscopic in that they investigate aggregate shifts in the structure of social and economic systems.

Such aggregate analyses have a serious limitation, however. They can provide only a partial picture of the relationships between socioeconomic dynamics, the evolution of populations of jobs, and the movement of individuals between jobs, because they cannot incorporate information on employing organizations. Proponents of the new structuralism in stratification and social mobility research have argued persuasively that organizations play the dominant role in career outcomes (Stolzenberg 1978; Baron and Bielby 1980). Jobs and careers are embedded in organizational structures, and these structures strongly affect individual mobility (Granovetter 1986). Firms are the key intermediaries linking the micro and macro dimensions of work organization and stratification (Hannan 1988). Accordingly, much research over the past 15 years has investigated the roles played by the demography of employees and by organizational structure in determining job mobility (Stewman 1988; Rosenfeld 1992). Research on labor-market dynamics, therefore, must recognize that changes in the population of employing organizations connect macro structural changes to individual mobility.

In contrast to highly aggregated studies of labor-market dynamics, studies of plant openings and closings (e.g., Leonard 1987) and organizational start-ups (e.g., Birch 1981, 1987) do incorporate information on specific employing organizations. Hence, these studies are able to examine how industry dynamics affect the availability of various types of jobs and therefore individual job mobility. But these studies are primarily descriptive in nature. They seek to demonstrate the existence of labor-market volatility caused by organizational founding and failure without applying sociological or economic theories to explain how such organizational dynamics translate into career mobility processes and socioeconomic attainment.

In conclusion, recent trends in research on career mobility demonstrate

that attending to changes in opportunity structures facing individuals will explain much social mobility. But previous research is limited, either by lack of information on employing organizations, which link macro structural dynamics to individual mobility, or by lack of a theoretical explanation of causal processes. Clearly the time has come to link theories of careers to theories of organizations and to develop an ecological theory of career processes. The need for a synthesis of research on careers and organizational dynamics is by no means novel. Spilerman (1977) showed that career paths are shaped by the organizational demography of the labor market (i.e., by the distribution of employing organizations and changes in this distribution, meaning which industries and organizational populations are expanding and which are contracting). Research in organizational ecology investigates precisely these outcomes: organizational founding and failure processes and the expansion, decline, and demographic evolution of organizational populations. Hence, organizational ecology can be expected to provide answers to the question of how industry dynamics affect the careers of individuals.

#### AN ECOLOGICAL THEORY OF CAREER MOBILITY

Organizational ecology research has focused on two main outcomes for organizations: founding and failure. Very little work has turned organizational ecology on its head and examined the consequences of these processes for organizational communities, single organizations, or individual organization members. One notable exception is the work of McPherson (e.g., 1983), who has used ecological models to tie together macro-structural theory and the micro-structural dynamics of organizational demography. McPherson modeled dynamic processes that link the structure of interorganizational communities and the demographic makeup of single organizations, using ecological theory to make sense of the environment from which organizations draw their members. Another exception is the growing number of studies examining the impact of organizational founding and failure processes on the evolution of organizational size distributions (e.g., Hannan and Ranger-Moore 1990).

Ecological theorists recognize the need to expand the scope of research in organizational ecology to explain more than just rates of organizational founding and failure. Hannan and Freeman (1989, pp. 1–44) stated that one goal of organizational ecology is to bring the study of organizations back into the mainstream of sociology by reorienting research on organizations so that it addresses fundamental problems of social organization and social change. They argued that understanding the dynamics of organizations will help us understand processes of social change. To date,

however, little has been done to link ecological processes to other areas of sociological inquiry. This article attempts to fill this gap in the literature by linking organizational ecology to one important area of research in sociology: social stratification and mobility. The call for applying ecological models to explain stratification and mobility is not new. Indeed, Duncan and Schnore (1959) recognized that the community ecology perspective (Hawley 1950), upon which much of current organizational ecology builds, holds great promise for explaining change over time in stratification systems.

A number of ecological processes affect patterns of social mobility by creating new jobs and eliminating old jobs. These processes include organizational growth and decline; organizational founding, failure, and merger; and organizational restructuring. Propositions about how and why these industry dynamics are related to individual mobility can be derived by building on vacancy-chain and vacancy-competition models (White 1970; Sørensen 1975, 1977).

The vacancy-chain model views jobs as relatively stable socio economic positions, independent of the individuals who occupy them. When an incumbent leaves a job, a vacancy is created. This vacancy is filled when someone new enters the job. If the newcomer moves from another job (rather than entering the labor force for the first time), his or her move causes the vacancy to shift to his or her former job. Within any organization, chains of employees move in one direction and chains of job vacancies move in the other direction. Vacancy chains are closed when jobs are filled by individuals entering the organization from outside—from school, another organization, or unemployment—or when the last vacant job is abolished. Although the vacancy-chain model was constructed within the confines of single organizations, Stewman (1975) argued that the model can be viewed as a system model rather than a formal organizational model, so it may be applied to internal and external labor markets. This accords with White's (1970, pp. 17–18) statement that career processes operate in systems of jobs that are not usually confined to a single organization. The vacancy-chain model encompasses situations in which job vacancies pull people up within organizations and situations in which vacancies pull people across organizational boundaries. Although this model allows for the creation and destruction of jobs, it is formulated within the boundaries of a system of stable employing organizations. White also says, however, that “men have long work lives as measured on a time scale appropriate to social structures. Most organizations have shorter lives than men” (1970, p. 3). It is reasonable, then, to extend the vacancy-chain model to recognize that organizational systems are unstable and that industry structure shifts as new organizations are born and established organizations die, causing the

large-scale creation and destruction of jobs and thus the opening and closing of job vacancies.

### Organizational Founding and Career Mobility

Organizational founding will have both direct and indirect effects on career mobility. Consider the direct effects first. When organizations are founded, new jobs and therefore new vacancies are created. These new vacancies must, obviously, be filled externally because fledgling ventures start with no personnel. One likely source for staff is other firms in the same industry. Hence, individuals will move out of established organizations and into start-ups. The magnitude of the direct impact of organizational founding on interorganizational mobility depends on two factors. First, the founding of each new organization will create a number of vacancies proportional to the size of the new venture. Second, new firms will draw on the personnel of established firms in the industry to the extent that employees in an industry possess industry-specific knowledge and skills that are valuable to new ventures. Hence, the larger the newly founded organizations and the stronger the industry-specific skills, the more organizational founding will directly affect interorganizational mobility.

The movement of personnel out of established organizations and into newly founded organizations creates vacancies in established organizations. These vacancies are likely to be filled internally. Here we see the indirect effect of organizational founding on intraorganizational mobility. These vacancy chains, which originated in newly founded organizations, will move through established organizations until they are closed by hiring workers from outside the industry or by the elimination of the vacated jobs. It is likely that some of the vacancies in established organizations will be filled by raiding other established organizations for their personnel. Such external hiring is part of the indirect effect of organizational founding on interorganizational mobility.

There is limited empirical evidence about the relationship between organizational founding and interorganizational mobility. Roos (1978) found that the creation of new public-sector organizations in Turkey between 1951 and 1965 had a strong impact on career mobility and job satisfaction for graduates from the Faculty of Political Science. Changes in the opportunity structure generated by organizational founding interacted with trends in education to shape patterns of individual mobility and job satisfaction. The expanded opportunity structure generated by organizational founding attenuated the relationship between course of study and type of work organization for younger cohorts (individuals in early career stages) but not for older cohorts (individuals in later career

stages). Interorganizational mobility increased during the 1951–65 wave of organizational births and decreased again when this wave passed (1965–74).

In contrast, Hachen (1992) found that growth in the number of establishments in an industry decreased quit rates and rates of upward movement within firms. Although the emergence of new firms in an industry increases external opportunities, employing firms may respond to heightened competition for workers by increasing wages. The net effect on quit rates may therefore be negative.

Organizational founding is likely to correlate with general economic growth. Thus, organizational founding in one industry may be positively correlated with organizational founding in other industries. As a consequence, organizational founding may appear to be positively related to exits from the focal industry (transfers from the focal industry to other growing industries). But this relationship is spurious and would not appear when models of career mobility control for general economic trends or the dynamics of entire organizational communities (DiPrete 1993; Korn and Baum 1994).

In sum, we offer the following hypotheses:

*HYPOTHESIS 1.—Organizational founding will increase the rate of intraorganizational mobility.*

*HYPOTHESIS 2.—Organizational founding will increase the rate of interorganizational mobility, after controlling for the positive direct effect of moving into newly founded organizations.*

*HYPOTHESIS 3.—Organizational founding will have no effect on the rate of exit from the industry, after controlling for general economic conditions.*

### Organizational Dissolution and Career Mobility

Organizations disappear in two ways: through dissolution or disbanding and through merger with or acquisition by other organizations. Outright organizational dissolution eliminates jobs wholesale. Former employees must seek employment in surviving organizations or leave the labor market. These people may find new jobs in either their current industry or a different industry. The direct effects of organizational dissolution on interorganizational mobility and on exit from an industry (into other industries, into unemployment, or out of the labor force) will therefore be positive.

When employees from disbanded organizations take jobs in surviving organizations, they close vacancy chains. This closure of one section of the opportunity structure redounds on individuals further down the chain of mobility and therefore decreases intraorganizational mobility in sur-

viving organizations. This is the first indirect effect of organizational dissolution. Organizational dissolution has a similar indirect effect on interorganizational mobility. After controlling for the positive direct effect on interorganizational mobility (out of dissolved organizations into surviving organizations), the indirect effect on interorganizational mobility will be negative, as the closure of vacancy chains in surviving organizations diminishes the chances of employees moving across organizational boundaries. Finally, the indirect effect of organizational dissolution on exit from the industry is likely to be positive, because organizational dissolution reduces the number of organizations available within the industry for employees to move into and forces employees to seek opportunities outside the industry. Note that, as with organizational birth, organizational failure rates in one industry may mirror general economic conditions. Hence, it is necessary to control for the health of the wider economy in order to be certain that the relationship between organizational dissolution and exits from the industry is not spurious.

In accordance with this reasoning, we offer the following hypotheses about the indirect effects of organizational dissolution on career mobility:

**HYPOTHESIS 4.**—*Organizational dissolution will decrease the rate of intraorganizational mobility.*

**HYPOTHESIS 5.**—*Organizational dissolution will decrease the rate of interorganizational mobility, after controlling for the positive direct effect of movement from dissolved organizations into surviving organizations.*

**HYPOTHESIS 6.**—*Organizational dissolution will increase the rate of exit from the industry, after controlling for general economic conditions and for the positive direct effect of movement from dissolved organizations out of the industry.*

### Organizational Merger and Career Mobility

If organizations disappear through merger or acquisition, the consequences for the movement of employees differ from the consequences of dissolution. When an organization acquires a failing organization, the employees of the acquired organization are forced to change employers, either to the newly merged firm or to a different employer, inside the industry or out. Therefore, merger and acquisition have positive direct effects on interorganizational mobility and exit from the industry.

The employees of acquired firms who take jobs in the surviving (merged) enterprises shut down vacancy chains. When one section of the opportunity structure closes, individuals further down the chain of mobility are frozen in position. Thus, one indirect effect of merger will be to decrease intraorganizational mobility in surviving organizations. After controlling for the positive direct effect of merger on interorganiza-

tional mobility (caused by transfers from acquired to acquiring organizations), the indirect effect may be negative, as the closure of vacancy chains in merged organizations diminishes the chances of attracting employees across organizational boundaries. On the other hand, merger may have a positive indirect effect on interorganizational mobility. Widespread reorganization often follows merger and acquisition, as the companies involved mesh control systems, standard operating procedures, organizational structures, and physical locations (Magnet 1984; Buono and Bowditch 1989, pp. 1–58). Merger may therefore increase mobility into and out of merged organizations. This turbulence would spill over into nonmerged organizations, increasing interorganizational mobility.

Previous empirical research offers some evidence on these matters. In a study directly pertinent to the research site we use in this article, Buono and Bowditch followed the merger of two savings banks in the Northeast in 1981 (Buono and Bowditch 1989, pp. 25–37). They concluded that the strain of organizing to integrate the merger partners had substantial negative impacts on the attitudes and behaviors of individual managers and strongly affected managers' career trajectories. This suggests that merger may increase mobility within, into, and out of merged organizations.

Most research on the relationship between merger and labor processes has been conducted at very high levels of aggregation and hence has not provided much empirical evidence about the impact of merger and acquisition on career outcomes. For example, Brown and Medoff (1988) linked merger and acquisition of firms in Michigan to overall employment levels and wages. They concluded that, on average, only small changes in wages and employment followed merger and acquisition. Brown and Medoff had only net figures (employment levels in merged firms), however, not information on gross flows (entries and exits into the merged firms). Therefore, basic mobility processes were masked in their data.

In a narrower context, Walsh (1988) studied the impact of merger and acquisition on the top management of large firms. He found that the turnover rate of top management was higher in takeover targets in the two years immediately following a merger or acquisition than it was in a control group of nonmerged firms. Similarly, Unger (1986) reported that turnover for top management in a sample of 150 mergers of large U.S. companies was almost 50% in the year following merger. These results indicate support for the thesis that merger and acquisition directly cause a substantial amount of movement between organizations.

Downsizing in employment is also likely to follow merger (Birch 1987, pp. 48–51). Many employees of merged organizations—whether they worked in acquiring or acquired firms—will be forced to seek employment elsewhere. Others will leave hybrid organizations voluntarily. Even

when total employment in merged firms remains comparable to employment in the premerged entities, there is likely to be considerable turnover of old personnel and entry of new personnel (Cartwright and Cooper 1992, pp. 30–50). One journalist estimated that up to one-half of the employees in merged firms will either leave or shift jobs within newly merged companies (Magnet 1984). If employees leaving merged firms find jobs in the same industry, interorganizational mobility will increase. If these people find jobs in other industries, enter the ranks of the unemployed, or leave the labor force, exits from the industry will also increase.

Building on this logic and empirical evidence, we hypothesize that merger has the following indirect effects on career mobility:

**HYPOTHESIS 7.**—*Merger will decrease the rate of intraorganizational mobility.*

**HYPOTHESIS 8.**—*Merger will increase the rate of interorganizational mobility, after controlling for the positive direct effect of transfers from acquired firms into acquiring firms.*

**HYPOTHESIS 9.**—*Merger will increase the rate of exit from the industry, after controlling for the positive direct effect of exits out of acquired firms.*

### Comparative Effects

The magnitude of the effects of industry dynamics will likely be different for different types of moves. Ecological forces can be expected to demonstrate stronger effects on external mobility than on internal mobility. Obviously, organizational birth and death can have no direct effect on internal mobility, just indirect effects carried through mobility chains. These indirect effects are likely to be buffered by the presence of ILMs and by other personnel policies. In addition, moves between firms within any industry may be affected more strongly by industry dynamics than are exits from that industry to other industries or to retirement. Exits from an industry are affected not only by the dynamics of that industry but also by conditions in other industries to which employees might move. Accordingly, we propose the following comparative hypothesis:

**HYPOTHESIS 10.**—*Industry dynamics (birth, dissolution, and merger) will have the most impact on movement between firms within that industry and less impact on exit from the industry and movement within firms in that industry.*

### Interactions

In the sections above, we developed propositions about the main effects of ecological processes on career mobility. These processes are unlikely,

however, to have purely independent effects on the movement of individuals between firms and jobs in any industry. Instead, these ecological processes probably sometimes reinforce and sometimes dampen each other. An industry that experiences a high organizational birthrate coupled with high organizational dissolution and merger rates is obviously in greater turmoil than an industry that experiences a high birthrate and low or moderate dissolution and merger rates: in the first instance, the opportunity structure is changing much more rapidly than in the second instance. Similarly, an industry that experiences low birth, merger, and dissolution rates is far more stable than an industry that experiences a low birthrate and high or moderate dissolution and merger rates: in the first instance, the opportunity structure is changing very little, if at all, while in the second instance, the opportunity structure is changing considerably. The forces generated by organizational founding and failure will likely feed each other; in other words, the effect of a large number of organizational births will depend on the number of organizational dissolutions and mergers and vice versa.

First, consider interactions between birth, on one hand, and dissolution or merger, on the other. For interorganizational mobility, the indirect main effects of organizational birth and merger are predicted to be positive, while the indirect main effect of dissolution is predicted to be negative; however, if a large number of births were accompanied by a large number of dissolutions or mergers, we would expect to see strongly increased interorganizational mobility rates, as the employees forced out of the large number of failing (dissolved or merged) firms sought jobs in the many newly founded firms. If models of interorganizational mobility included variables to indicate interactions between birth and dissolution and between birth and merger, we would expect the effect estimates on these variables to be positive. We would further expect that when birthrates are high, the total impact of organizational dissolution and merger, including main effects and interactions with birth, would be positive rather than negative. Great industry turmoil should spur interorganizational, intraindustry mobility.

Interactions between founding and failure will have parallel but weaker effects on intraorganizational mobility. We predict a positive indirect main effect for organizational birth and negative indirect main effects for organizational dissolution and merger. Both interactions—birth with dissolution and birth with merger—ought to have positive effects, for a large number of organizational foundings will attenuate the decline in intraorganizational mobility caused by both organizational failure processes and a large number of failures will further fuel the increase in intraorganizational mobility caused by organizational founding.

If movement within the industry is amplified by industry turmoil, exit from the industry will be attenuated by such turmoil. Recall that we predict positive indirect main effects of dissolution and merger on exit from the industry. Although birth has no main effect on exit from the industry, this process ought to ameliorate the impact of organizational dissolution and merger on exit from the industry. When an industry is in great turmoil, a large number of foundings essentially cancels out a large number of failures. Under these circumstances, individuals forced out of merged or dissolved firms can find positions in newly founded firms and are less likely to have to leave the industry. Therefore, in analyses of exit from the industry, interactions between birth and dissolution and between birth and merger will have negative effects.

It is also likely that the effects of the two failure processes, merger and outright dissolution, interact. Merger and dissolution should amplify each other's effects, so that when a large number of mergers is accompanied by a large number of dissolutions, the impact of both ecological processes will increase in magnitude. Consider first the combined impact of dissolution and merger on movement between firms within any industry. Individually, dissolution is predicted to indirectly decrease interorganizational mobility, as this process closes down vacancy chains, while merger is predicted to indirectly increase interorganizational mobility, as firms reduce staff and reorganize in the wake of merger. The interaction between dissolution and merger will likely have a negative effect on interorganizational mobility, exacerbating the negative effect of dissolution and attenuating the positive effect of merger. The interaction between failure processes on intraorganizational mobility should also be negative. Finally, an interaction between merger and dissolution can be expected to further increase exits from the industry, exacerbating the main effects of dissolution and merger.

Following this reasoning, we offer the following interaction hypotheses:

**HYPOTHESIS 11.**—*The interaction between organizational founding and organizational dissolution will increase the rate of intraorganizational mobility.*

**HYPOTHESIS 12.**—*The interaction between organizational founding and dissolution will increase the rate of interorganizational mobility.*

**HYPOTHESIS 13.**—*The interaction between organizational founding and dissolution will decrease the rate of exit from the industry.*

**HYPOTHESIS 14.**—*The interaction between organizational founding and merger will increase the rate of intraorganizational mobility.*

**HYPOTHESIS 15.**—*The interaction between organizational founding and merger will increase the rate of interorganizational mobility.*

**HYPOTHESIS 16.**—*The interaction between organizational founding and merger will decrease the rate of exit from the industry.*

HYPOTHESIS 17.—*The interaction between organizational dissolution and merger will decrease the rate of intraorganizational mobility.*

HYPOTHESIS 18.—*The interaction between organizational dissolution and merger will decrease the rate of interorganizational mobility.*

HYPOTHESIS 19.—*The interaction between organizational dissolution and merger will increase the rate of exit from the industry.*

## RESEARCH DESIGN

Research Setting: The California Savings and Loan Industry, 1969–88

Propositions linking industry dynamics to the movement of individual employees between jobs are best studied from a macro perspective, using longitudinal data on the individuals employed in one industry or organizational population or longitudinal data on the members of one occupational group employed in diverse organizations. We have followed the first strategy and collected data on the executive employees of all the savings and loan associations in California over a period of 20 years. Analysis of these data allows us to assess directly the link between organizational dynamics and individual mobility. Our methods contrast with previous research using more highly aggregated data on shifts in socioeconomic or industry structure (Blossfeld 1986; Hachen 1992; DiPrete 1993; Korn and Baum 1994). Our focus on managers and managerial jobs is consistent with our use of the vacancy-chain model, for this part of the labor force is most likely to follow chains of movement among fixed jobs, as assumed in this model (White 1970, pp. 17–18).

Because the savings and loan (thrift) industry is regulated, each firm must submit detailed reports to regulatory agencies. A wealth of reliable and serially consistent data on the behavior of these organizations and their managerial employees is available for analysis, something that is not true for many organizational populations. Moreover, the intense regulatory scrutiny applied to this industry makes it act as more of an ILM than do less regulated industries. Thrift managers develop skills related to thrift regulation and thus are likely to be firmly wedded to careers in the thrift industry. Specialization in the nuances of state regulation effectively precludes movement of managers to other industries. Of the moves in our sample, just over 40% were within the industry. The remainder of the moves were out of the industry, but these included geographic relocations, retirements, and departures for further education. This ILM effect is likely to be stronger at the managerial level than at lower levels, where skills are less industry specific. This sort of training specificity and commitment to a career in a single industry is not unique

to managerial jobs in the thrift industry. For instance, the training of petroleum engineers and Protestant ministers creates similar career dynamics. Among semiskilled workers, such as restaurant chefs, welders, and printing-press operators, labor-market patterns may be similar to those seen for thrift managers.

Even when jobs or careers do not appear to unfold within industry- or firm-specific labor markets, industry dynamics will affect individual careers. The magnitude of these effects will vary depending on the nature of the positions held by individuals and the structure of the industry. For example, the relevant organizational populations to study to explain the career dynamics of a teller might include all banks, savings and loans, and credit unions. For a nurse, those populations might include all hospitals, health maintenance organizations, and hospice organizations.

The savings and loan industry in California offers an excellent forum for investigating relationships between the dynamics of organizations and the movement of individual employees. Over the last quarter-century, the savings and loan industry has experienced extraordinary changes. The increasing volatility of interest rates and the opportunities resulting from deregulation have led to a large number of organizational foundings, takeovers, mergers, and outright dissolutions. The dynamic nature of this industry facilitates testing hypotheses about changes in labor-market structures driven by organizational turbulence. California is a large state and supports a dense population of thrifts: on average, over 180 firms operated each year throughout this period. The dynamics seen in the California savings and loan industry are typical of other industries as well. Comparable founding, merger, and dissolution activity has been observed in such diverse industries as banks, insurance companies, newspapers, semiconductor manufacturers, breweries, voluntary social service organizations, day-care centers, and restaurants (e.g., Hannan and Carroll 1992).

Our data show variance on both sides of the causal model: (1) much organizational birth, death, and merger activity and therefore much change in the population of jobs available; and (2) much movement of managers within and between firms in this industry. Descriptive statistics presented in table 1 show trends in management employment and mobility in this organizational population between 1969 and 1988. The number of managers in the sample was relatively constant until 1975, when it dropped abruptly due to changes in reporting requirements of the federal regulators. Because the detail required to be reported was lessened considerably between 1974 and 1975, the number of managers reported by many large thrifts dropped. After that time, there was a slow but steady

TABLE 1  
TRENDS IN THE CALIFORNIA SAVINGS AND LOAN INDUSTRY, 1969-88

Year	Firm Births	Firm Deaths	Firm Mergers	Firms	Managers	Moves within Firms	Moves between Firms	Moves out of Industry	Total Moves
1969	2	0	25	229	1,752	97	111	208	416
1970	1	0	20	210	1,713	86	61	211	358
1971	0	0	20	190	1,708	90	134	163	387
1972	6	0	19	177	1,702	79	62	153	294
1973	7	0	9	175	1,837	73	93	257	423
1974	6	0	12	169	1,784	85	144	815*	1,044*
1975	10	0	14	165	1,150*	125	27	94	246
1976	5	0	6	164	1,104	92	41	100	233
1977	4	0	3	165	1,115	87	43	76	206
1978	8	0	3	170	1,166	91	47	113	251
1979	11	0	1	180	1,220	103	65	173	341
1980	24	1	8	195	1,277	85	100	262	447
1981	13	0	22	186	1,213	76	101	327	504
1982	17	4	33	166	1,116	109	64	176	349
1983	18	0	4	180	1,253	133	66	288	487
1984	20	1	1	198	1,330	115	74	310	499
1985	27	1	8	216	1,441	123	62	329	514
1986	13	3	10	216	1,466	116	71	348	535
1987	8	8	9	207	1,412	92	26	442	560
Total	200	18	227	3,558	26,759	1,857	1,392	4,845	8,094

NOTE.—Firm births and deaths are listed in the calendar year in which they occur; firms and managers are counted at year's end. Moves are job changes by managers, move data are measured between the calendar year shown and the following calendar year.

\* The large number of apparent moves out of the industry in 1974 is a result of a change in federal reporting requirements that allowed less detailed reporting of thrift managers.

increase in the number of managers.<sup>3</sup> Between 1969 and 1988, 5,816 thrift managers made a total of 8,094 job shifts. This represents, on average, 1.4 moves per manager, indicating that the typical manager held 2.4 jobs over the typical five-year job history we observed. About 23% of these were moves within the same firm, 17% were moves between firms within the thrift industry, and the remainder were exits from the industry. Note that organizational failure came about solely through

<sup>3</sup> When we cleaned the data, we made every effort to minimize the impact of this change in recording. We filled gaps in the records of individuals who were continuously employed by one firm but for whom data were missing for a few years after 1974. However, the vast majority of managers who disappeared in 1974, primarily those at the level of vice president or below, never reappeared. We controlled for this change in recording with a variable indicating exit between 1974 and 1975 for low-level managers. We also reestimated all models using data for the period 1975-88 only. These results, which are available from the first author upon request, do not differ materially from those reported here. Generally, the only change is lower significance levels, which are expected for estimates on a smaller data set.

merger until 1980, when the first outright dissolution was seen. Over 90% of organizational failures occurred through merger.

### Data Sources

For the time period covered by these analyses, the Federal Home Loan Bank Board (FHLB) of San Francisco was the regulatory body that governed savings and loan associations in California, Nevada, and Arizona. The FHLB published reports on all member institutions. These annual *Directories of Members* contain summary data on the industry, plus a wealth of data on each firm: date of incorporation, a simple balance sheet, and names and titles of top managers (from the assistant vice president up). We acquired *Directories* from December 1969 to December 1988. These sources enabled us to draw up life histories of all California thrifts and to piece together the work histories of all top managerial employees from 1969 to 1988.

### Model Specification and Measurement

The outcomes of interest in this study are career trajectories, in other words, changes in individuals' jobs. We study the rates at which individuals move from one employing organization to another, the rates at which employees move between jobs within organizations, and the rates at which employees leave the industry.<sup>4</sup> We study discrete, time-varying outcomes, and our explanatory variables are a mix of continuous and discrete variables. (For a summary listing of all variables, see app. A, table A1.) Accordingly, we use event-history analysis. The dependent variables in our analyses are instantaneous rates of transition from one state of employment to another, defined as

$$r_m(t) = \lim_{dt \downarrow 0} \text{prob} \frac{(t \leq T < t + dt, M = m | T \geq t)}{dt},$$

where  $r_m(t)$  is the hazard rate of movement from one position to another,  $\text{prob}(\cdot)$  is the probability of movement between times  $t$  and  $t + dt$ , given that the individual is in the sample (i.e., employed in the thrift industry) at time  $t$ . This competing risks model distinguishes between the three types of moves that any savings and loan manager is at risk of making: moving between positions within a firm, moving across firms within the industry, and moving out of the industry. Thus  $m$  can take on three

<sup>4</sup> Unfortunately, our data do not permit us to distinguish between voluntary and involuntary turnover, except that we can presume involuntary movement accompanies organizational dissolution or merger.

different values: "1" for a move within a firm, "2" for a move between firms in the thrift industry, and "3" for an exit from the thrift industry.

Any individual in our sample can move multiple times. Accordingly, we study career mobility using a repeated-events framework. The dependent variable is a transition rate that incorporates information from all job shifts, not just the first. We estimate a composite transition rate for all moves, regardless of whether or not an individual has moved before:

$$r_m(t) = \exp[\beta_m X(t)],$$

where  $\beta_m$  consists of three vectors of coefficients, one coefficient per variable per value of  $m$ , and  $X(t)$  is a vector of time-varying explanatory variables: rates of organizational founding, dissolution, and merger; characteristics of employing organizations; type of job held and length of service in the job and firm; and characteristics of the industry and general economic system. Our analysis produces three sets of parameter estimates, one corresponding to each of the three types of moves.

*Measurement of dependent variables.*—The outcome under study is movement from job to job within and between savings and loan associations. Accordingly, for each thrift manager each year, we note the position the manager held (determined by job title) and for which firm the manager worked.

We originally coded job title exactly as it was reported in the annual reports. We then recoded our data to eliminate inconsistencies in reporting over time. For example, the records of an individual who was reported as a vice president (VP) and secretary in one year, as a VP only in the next year (no one else was reported as secretary), and as a VP and secretary in the third year were recoded as VP and secretary all three years. The 6,039 managers who worked between 1969 and 1988 had 139 distinct job titles. To reduce this to a meaningful and manageable number, we aggregated job titles in two ways. For staff functions, we created five categories: secretary; treasurer; comptroller; any combination of secretary, treasurer, and comptroller; and a miscellaneous category that included the few managers who held such titles as chief financial officer, chief marketing officer, chief loan officer, chief operating officer, and general counsel. For line jobs, we grouped similar titles together by eliminating staff functions from the titles of various levels of vice presidents. For instance, we grouped together executive VPs (EVPs) and EVPs who held any combination of staff positions into the category EVP. In this fashion, we distilled the original 139 job categories into 16. In descending order, these are chairman, president, chief executive officer, vice chairman, senior executive VP, executive VP, first VP, senior VP, second VP, VP, the five staff positions, and assistant VP.

After aggregating job titles into 16 categories, we examined which of

these job titles was held by each individual from one year to the next. We recorded job shifts whenever an individual's job title changed, whenever an individual moved from one firm to another, and whenever an individual left the industry.

*Measurement of independent variables.*—We measure organizational founding and failure with counts of organizational birth, dissolution, and merger for each calendar year. We measure organizational birth as occurring in the calendar year in which the organization first provides financial and managerial data. This was generally the same year as incorporation or the following year. Dissolution and merger are measured as occurring in the year following the last year in which the organization recorded financial and managerial data. This was generally the same year as thrift regulators gave for dissolution or merger. Coding birth, dissolution, and merger this way draws a tight temporal link between organizations' vital events and personnel flows.

*Measurement of control variables.*—We control for two important characteristics of savings and loan managers: job held and tenure. Job held is a rough control for level in the corporate hierarchy and for line versus staff functional distinctions (e.g., vice president vs. treasurer). Job held is likely to influence intra- and interorganizational mobility, as those nearest the top have reached a ceiling for intraorganizational mobility, while those nearer the bottom can move both internally and externally.

Our models include two tenure variables: tenure in the firm and tenure in the job. We coded tenure in the firm as dating from the first year a manager was recorded as having worked in a firm. Tenure in the job dated from the first year a manager was recorded as having a job title.<sup>5</sup> It is important to control for tenure, because recent research shows that labor-market turbulence affects experienced workers differently from inexperienced workers (DiPrete 1993). Moreover, tenure in the firm has been shown by past research to diminish interorganizational mobility, and tenure in the job has been shown to diminish intraorganizational mobility (e.g., Tuma 1976). Existence of negative duration dependence in models of job mobility is consistent with theories of careers that treat

<sup>5</sup> We had continuous records for state-chartered thrifts back to the turn of the century and could assign accurate start dates to all managers in these firms; however, for federally chartered thrifts, data were missing before 1946 and between 1948 and 1957, inclusive. For managers in federally chartered thrifts who were working in 1958, we checked firm records for 1946 and 1947. If the managers did not appear in 1947, we randomly assigned them start dates (for company and job) between 1948 and 1958, inclusive. If the managers did appear in 1947 and 1946, we randomly assigned them start dates between 1937 and 1946, inclusive. All randomly assigned start dates were bounded by firm birth. Of the 1,444 managers working in 1969, we assigned start dates for jobs to 82 managers and start dates for firms to 185 managers.

mobility as a matching process under conditions of incomplete information (e.g., Jovanovic 1979*a*, 1979*b*; Sørensen 1977). It is also consistent with the presence of unobserved heterogeneity in the workforce (Tuma and Hannan 1984, pp. 174–79). Since we have no other data on individuals (apart from job title), controlling for unobserved heterogeneity by controlling for both types of tenure is imperative.

Following previous research (Tuma 1976; Sørensen 1977), we model duration dependence in rates of job mobility using a log-linear function of tenure. According to this specification, rates of job mobility decline exponentially with tenure in the firm and tenure in the job. In order to explore the possibility that time dependence in career mobility takes other forms, we also estimated models with log (duration) and with duration plus duration squared. These changes did not substantially alter the effects estimated for the other variables, so we present only the models containing the simple tenure variables.

We control for two organizational characteristics: age and size (in terms of assets and number of managerial employees).<sup>6</sup> Older organizations are more likely to have established ILMs, which buffer employees from environmental turbulence. Organizational size has also been linked to the development of ILMs (Granovetter 1984; Pfeffer and Cohen 1984) and thus is also likely to attenuate industry effects. Additionally, in order to assess the indirect effects of organizational mortality net of the direct effects, our models include a control for the death of the employing organization.

We also control for forces in the environment that are likely to affect the opportunity structures facing savings and loan managers. We control first of all for the number of thrifts operating each year (industry density), in order to control for the number of firm boundaries that exist for individuals to cross. Next, we control for the number of individuals in California working in the financial-services sector, which provides a measure of the total mass of financial-services jobs. We also control for unemployment in the state, which is a gross measure of the mobility opportunities available outside the thrift industry and the competition for those jobs. Finally, we control for state gross domestic product, which assesses the general health of the state economy.

<sup>6</sup> In preliminary analyses, we also controlled for organizational growth or shrinkage by measuring the one-year change in the number of managerial employees. Organizational growth and contraction affect mobility, in part because these processes create new jobs and destroy existing ones, thereby altering opportunity structures (Baron 1984). Controlling for organizational growth or contraction also makes it possible to control for the phenomenon of employees leaving a troubled company. But the addition of this variable to the baseline model did not significantly improve fit to the data, so this variable was dropped from the analyses shown here.

The data are broken down into one-year spells. All variables are updated each year. Control variables that represent levels, such as industry density and tenure in the firm, are measured at the beginning of each calendar year; independent variables that represent flows, such as number of firm births, are measured over the prior calendar year; and dependent variables, which indicate movement within firms, between firms, and out of the industry, are measured during the current calendar year. Thus, independent and control variables are measured one year before dependent variables. The control for the direct effect of the death of the employing organization, however, is measured concurrently with movement (i.e., during the same calendar year). There are 26,759 one-year job spells in the data set, covering the work histories of all 5,816 individuals employed in the top ranks of the 427 savings and loan associations that operated between 1969 and 1987 (the 223 individuals who began employment in the top ranks of California thrifts in 1988 are dropped since we have no data on their subsequent job moves). Table 2 presents means, standard deviations, and correlations for the variables used in the hazard rate analysis.

Of particular interest are the bivariate correlations between the independent and dependent variables. All but one are in the predicted directions and 12 of these are statistically significant. For example, organizational birth is positively correlated with intraorganizational mobility, as predicted by hypothesis 1, and positively correlated with interorganizational mobility (although not statistically significant), as predicted by hypothesis 2. The number of births is also positively correlated with exits from the industry, as expected when general economic conditions are not controlled. This relationship appears to be spurious: the number of births has strong, positive correlations with economic health variables (California financial services sector employment and gross state product, or GSP); these variables are, in turn, positively correlated with exits from the industry. In sum, these statistics provide preliminary support for our model.

To estimate the indirect effects of industry dynamics on job mobility, we use Tuma's (1980) maximum-likelihood (ML) program *RATE*, which controls for right censoring. Right censoring occurs when the value of the outcome under study is unknown (i.e., when some individuals in the sample have not yet changed jobs by the end of the observation period). Estimation of ML with *RATE* allows right-censored observations to be used in estimating parameters, thereby avoiding biases that result from eliminating censored observations or treating censored observations as though events occur when the observation period ends (Sørensen 1977; Tuma and Hannan 1984). With ML estimation, censored observations contribute exactly what is known about them, namely that the individual

TABLE 2

DESCRIPTIVE STATISTICS: MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

	Move within	Move Out	Exit	Births	Deaths	Mergers	Company Death	Company Merged	Go to New Company	Tenure in Company
Mean	.069	.052	.181	9.98	1.40	11.92	.006	.060	.007	5.93
SD	.254	.222	.385	7.57	2.68	7.82	.077	.237	.082	7.22
Move within		-.064*	-.128*	.045*	.010	-.047*	-.021*	-.069*	-.022*	-.026*
Move out			-.110*	.007	-.022*	.046*	.034*	.368*	.351*	-.065*
Exit				.081*	.111*	.054*	.134*	.290*	-.039*	-.100*
Births					.227*	-.160*	.027*	-.015*	-.039*	-.095*
Deaths						.089*	.156*	.006	.011	-.104*
Mergers							.013*	.153*	-.016*	.028*
Company death								-.020*	.053*	-.055*
Company merged									.106*	-.016*
Go to new company										-.028*
Tenure in company										
Tenure in job										
Left-truncated history										
Title										
1974 and low										
ln(firm age)										
ln(assets)										
ln(managers)										
Firms										
Financial employment										
Unemployment rate										
GSP										

NOTE—For definitions of variables, see app A; these statistics are calculated using pooled cross-sectional and time-series data covering 5,816 managers, 427 firms, and 26,759 one-year periods between 1969 and 1988

\*  $P < .05$ , two-tailed  $t$ -test

did not move for the duration of the observation period. Noncensored cases contribute their entire histories, including the career move.

One problem with this research design must be addressed, namely left truncation. Left truncation occurs whenever data are unavailable on the initial conditions and past history of the social actors under study (Cox and Oakes 1984, pp. 177–78). This study begins in 1969. Individuals who held managerial positions in the California thrift industry before this date and who left before 1969 are not part of the population analyzed; only individuals who were still there in 1969 are included. Having left-truncated data creates difficulties in interpreting parameter estimates. The sample of managers we study was chosen contingent upon their working in the industry at the start of the observation period (or at some

Left-										
Tenure in Job	truncated History	Title	1974 and Low	ln (Firm Age)	ln (Assets)	ln (Managers)	Firms	Financial Employment	Unemployment Rate	GSP
3.48	.378	7.96	.047	3.05	5.83	2 17	188.8	565.4	7.63	4,715.5
4.65	.485	3.88	.211	1.24	1.87	642	20.11	145.5	1.29	781.3
-.021*	-.038*	.081*	-.016*	-.022*	-.015*	-.060*	-.013*	.046*	-.002	.039*
-.065*	-.036*	.005	.021*	-.001	.034*	.028*	.0002	-.015*	.037*	-.026*
-.054*	-.117*	.070*	.219*	-.087*	-.025*	.045*	.024*	.101*	.052*	.108*
-.133*	-.440*	-.098*	-.116*	-.263*	-.105*	-.250*	.100*	.745*	-.108*	.634*
-.107*	-.314*	-.083*	-.115*	-.239*	-.051*	-.182*	.448*	.727*	-.492*	.801*
.052*	.221*	.034*	.059*	.073*	.004	.101*	.452*	-.256*	.287*	-.318*
-.048*	-.060*	-.015*	-.017*	-.123*	-.038*	-.041*	.067*	.109*	-.077*	.120*
-.002	.009	.003	.081*	.017*	.004	.018*	.026*	-.037*	.079*	-.048*
-.028*	-.040*	.002	-.012	-.031*	.003	-.002	-.011	.043*	.004	.033*
.706*	.645*	-.289*	-.041*	.335*	.120*	-.032*	-.056*	-.120*	.046*	-.129*
	.502*	-.098*	.017*	.233*	.047*	-.036*	-.026*	-.160*	.048*	-.155*
		-.105*	-.021*	.319*	.113*	.109*	.109*	-.532*	.126*	-.502*
			.137*	.035*	.001	.123*	-.026*	-.129*	.048*	-.118*
				.096*	.099*	.240*	-.217*	-.181*	.389*	-.134*
					.653*	.375*	-.137*	-.329*	.133*	-.317*
						.672*	-.040*	-.112*	.015*	-.080*
							-.083*	-.328*	.125*	-.277*
								.191*	-.407*	.232*
									-.434*	.960*
										-.535*

later time during our observation period). This selection criterion creates bias if it is correlated with the outcome under study (Heckman 1979; Berk 1983; Tuma and Hannan 1984). If the factors that cause an individual to continue to work for a thrift until 1969 are related to the factors that cause mobility after 1969, then there is sample-selection bias. Previous research has shown that tenure in an organization and tenure in a job are both linked to mobility (e.g., Tuma 1976). In investigating job mobility in this sample, we are therefore likely to be confronted with sample-selection bias. Note that sample-selection bias is attenuated to the extent that a large proportion (75%) of the individuals studied entered our sample after the beginning of our observation period.

Our models control for the fact that many of the individuals (1,444 out of 5,816) worked in California thrifts before the beginning of the observation period. The models estimated include a dummy variable for left truncation to provide a main-effects test of whether individuals work-

ing in this industry before 1969 differ from individuals who started work from 1969 onward. This control is similar to that used by researchers in organizational ecology who deal with left-truncated organizational life histories (e.g., Baum and Oliver 1991; Haveman 1992). We estimate multiple-spells models: our data are in the form of one spell per manager per year to capture changes in independent and control variables over time. This modeling strategy enables us to control for tenure in the company and tenure in the job for all managers, including those with left-truncated work histories. Thus, we condition our estimates of job mobility rates on tenure. This modeling strategy will lead to unbiased estimates, because it controls for the only aspect of past history that is of interest in semi-Markov models, namely duration in state (Yamaguchi 1991, pp. 7–8; Guo 1993).<sup>7</sup> This modeling strategy has the further advantage of using all available information, thus maximizing statistical power.

A second way to resolve the problem caused by the presence of left-truncated observations is to eliminate data on the individuals with left-truncated work histories, which has the disadvantage of throwing information away but is a good check on the unbiasedness of using the complete data set. Accordingly, we reestimated all models on a subset of data including only those individuals with full work histories. These results do not differ materially from those estimated on the full data set and therefore are not shown here; they are available from the first author upon request.

## RESULTS

### Direct Effects of Industry Dynamics

The first question to be addressed is: How much mobility occurred as a direct consequence of organizational birth, death, and merger? Table 3 shows the proportion of managers that were directly affected by these organizational dynamics and the proportion of various types of job shifts (entries into the industry, moves across firms, exits from the industry) that occurred as a direct consequence of the birth, dissolution, or merger of a savings and loan association.

The top half of this table examines the impact of organizational birth on job shifts. Over one-sixth of savings and loan managers worked in newly founded organizations. Indeed, over the course of their careers, 50 managers worked in two or three organizations at their time of founding.

<sup>7</sup> Semi-Markov models assume that hazard rates are independent of previous history, but they allow these rates to depend on duration in a state. See Tuma and Hannan (1984, pp. 92–95).

TABLE 3  
THE DIRECT EFFECT OF COMPANY BIRTH AND DEATH ON CAREER MOBILITY

	MANAGERS		MOVES BETWEEN ORGANIZATIONS		ENTRIES TO INDUSTRY		EXITS FROM INDUSTRY	
	N	%	N	%	N	%	N	%
Company births:								
All .....	6,039	100	1,392	100	4,355	100		
In or into new organizations .....	1,055	17.5	126	9.1	1,110	25.5		
Company deaths:								
All .....	5,816	100	1,392	100			4,845	100
In or from dying organizations .....	154	2.6	24	1.7			135	2.8
In or from merging organizations .....	1,348	23.8	602	43.2			1,000	20.6

NOTE.—6,039 managers worked in the industry between 1969 and 1988; 223 of these individuals began work in 1988. We have data on entry for all 6,039 managers, but we have data on moves for only the 5,816 managers who began work in 1987 or earlier.

Almost 10% of moves between firms occurred when managers left their old employing organizations to take jobs in newly founded firms. In addition, over one-quarter of the entries into managerial positions in this industry were entries into newly founded savings and loan associations.

The bottom half of the table investigates the direct impact of organizational failure—dissolution and merger—on career mobility. Over one-quarter of these managers were employed in savings and loan associations when these organizations failed. In addition, over the course of their careers, 167 managers had the misfortune to work in two or more thrifts at the time they failed. Almost half of all moves between firms in the industry occurred when managers left a failing firm. About one-quarter of the exits from the industry came from failing firms.

These figures demonstrate that a large proportion of managers in this industry were directly affected by organizations' vital processes. Moreover, they show that a large fraction of job shifts were direct and immediate responses to the merger or dissolution of old organizations or to the birth of new organizations. These results indicate that models of career mobility must take into consideration the dynamics of employing organizations. The direct effects of organizational birth, dissolution, and merger are considerable, but they are ignored in models that assume employing organizations to be permanent fixtures in labor markets.

#### Indirect Effects of Industry Dynamics

*Any move.*—Table 4 presents hazard rate models of the impact of the dynamics of the thrift population on all job shifts. The dependent variable here is any move from a managerial job in the California savings and loan industry, including moves within firms, moves between firms, and exits from the industry. Model 1 presents a baseline model containing only individual, organizational, and industry control variables: tenure in the company, tenure in the job, an indicator for left-censored work history, job title (a series of 15 indicator variables, with chairman being the omitted reference category), the natural logarithms of company age (years) and size (total assets and total number of managers), industry density, financial-sector employment, unemployment rate, and gross state product. The baseline model also includes three indicator variables to assess the direct effect of industry dynamics. The first variable indicates whether a manager moves into a newly founded organization (yes = 1). The second and third variables indicate whether the focal organization is merged or dissolved (yes = 1), thereby forcing mobility. Note that these three variables have the expected positive effects on overall mobility. Finally, the baseline model includes a variable to indicate whether the year is 1974–75 and the individual in question is at or below

the vice-president level (yes = 1), which controls for apparent exits from the industry by lower-level thrift managers that were actually caused by changes in recording between 1974 and 1975.

Models 2–8 add variables indicating industry dynamics. Organizational founding ought to have a positive effect on overall mobility, since it is predicted to have positive effects on two out of three types of mobility and a null effect on the third. Model 2 shows that the firm birthrate has a positive and marginally significant ( $P < .06$ ) relationship with the overall rate of mobility, which supports this notion. The overall impact of organizational dissolution ought to be negative, since we make three negative predictions. Model 3 shows that the effect of dissolution is negative and statistically significant. The impact of merger should have a positive effect on overall mobility, since it is predicted to have positive effects on two out of three types of mobility. Instead, model 4 shows a negative and marginally significant effect for merger ( $P < .08$ ). Model 5 shows the impact of all three simultaneously. The effect estimates for births and mergers are rendered nonsignificant, but the effect estimate for deaths remains strong.

Models 6–9 investigate interactions between ecological processes. Model 6 shows a negative and statistically significant effect for the interaction between birth and dissolution and a nonsignificant main effect for dissolution, indicating that the negative effect of dissolution depends on the number of births. Model 7 shows a similar negative effect for the interaction between birth and merger. Note that the main effect of merger, which was negative in model 4, is rendered positive when the interaction is controlled. This suggests that the negative main effect was spurious and picked up some of the dampening effect of the interaction. Model 8 shows no significant interaction between merger and dissolution. Finally, model 9 is a full model containing all main effects and interactions. The negative interactions between birth and dissolution and between birth and merger remain, as do the positive main effects of birth, dissolution, and merger. These results suggest that birth and failure (merger and dissolution) tend to dampen each other's impact on overall rates of job mobility.

The outcome examined in this analysis is any move, which is a heterogeneous category encompassing moves within firms, moves between firms, and exits from the industry. In order to examine the differences between the types of moves, we perform a competing risks analysis on the three types of moves. Tables 5–7 present these competing risks models. We discuss each outcome in turn, starting with job shifts within firms. Then we compare the results across the three types of moves.

*Moves within organizations.*—The first model in table 5 contains control variables for individual, organizational, and macroeconomic factors.

TABLE 4

## THE EFFECT OF INDUSTRY DYNAMICS ON THE RATE OF JOB MOVES

	MODEL								
	1	2	3	4	5	6	7	8	9
Constant .....	-3.42* (.282)	-3.39* (.283)	-3.86* (.331)	-3.54* (.293)	-4.06* (.442)	-4.23* (.423)	-2.83* (.354)	-3.78* (.344)	-3.17* (.520)
Tenure in company .....	-.018* (.004)	-.018* (.004)	-.018* (.004)	-.018* (.004)	-.018* (.004)	-.018* (.004)	-.017* (.004)	-.018* (.004)	-.017* (.004)
Tenure in job .....	.007 (.004)	.007 (.004)	.007 (.004)	.007 (.004)	.007 (.004)	.007 (.004)	.007 (.004)	.007 (.004)	.006 (.004)
Left-truncated history .....	-.027 (.044)	-.018 (.045)	-.022 (.044)	-.029 (.045)	-.023 (.045)	-.028 (.045)	-.032 (.045)	-.019 (.045)	-.040 (.045)
ln(firm age) .....	-.061* (.013)	-.060* (.013)	-.058* (.013)	-.060* (.013)	-.058* (.013)	-.059* (.013)	-.057* (.013)	-.059* (.013)	-.057* (.013)
ln(assets) .....	.012 (.011)	.012 (.011)	.010 (.011)	.011 (.011)	.010 (.011)	.011 (.011)	.011 (.011)	.011 (.011)	.011 (.011)
ln(managers) .....	.007 (.026)	.006 (.026)	.010 (.026)	.010 (.027)	.011 (.027)	.010 (.027)	.0004 (.027)	.007 (.027)	-.001 (.027)
1974 and low .....	.746* (.055)	.741* (.055)	.737* (.055)	.749* (.055)	.735* (.055)	.729* (.055)	.774* (.056)	.712* (.059)	.752* (.060)
Firms/100 .....	.179* (.074)	.162* (.074)	.247* (.078)	.265* (.094)	.260* (.101)	.351* (.097)	-.087 (.136)	.160 (.117)	-.018 (.167)
Financial employment/100 .....	.143* (.034)	.110* (.040)	.129* (.035)	.155* (.035)	.140* (.044)	.107* (.045)	.121* (.042)	.135* (.039)	.105* (.047)

Unemployment rate .....	.069*	.074*	.077*	.076*	.083*	.034 <sup>+</sup>	.078*	.047*
	(.014)	(.014)	(.015)	(.015)	(.015)	(.019)	(.015)	(.020)
GSP/1,000 .....	.009	.089	-.021	.113	.132 <sup>+</sup>	.015	.084	.046
	(.065)	(.072)	(.068)	(.092)	(.074)	(.074)	(.089)	(.094)
Go to new company .....	.526*	.514*	.519*	.513*	.530*	.522*	.515*	.532*
	(.077)	(.077)	(.077)	(.078)	(.078)	(.077)	(.078)	(.078)
Company death .....	.991*	1.03*	1.00*	1.03*	1.03*	1.02*	1.02*	1.03*
	(.084)	(.085)	(.084)	(.085)	(.085)	(.084)	(.085)	(.085)
Company merged .....	1.28*	1.29*	1.29*	1.29*	1.28*	1.29*	1.29*	1.29*
	(.029)	(.029)	(.030)	(.030)	(.029)	(.030)	(.030)	(.030)
Births/100 .....	.392 <sup>+</sup>		-.271	-.271	.357	2.08*	2.69*	2.69*
	(.239)		(.416)	(.416)	(.427)	(.584)	(.829)	(.829)
Deaths/100 .....		-1.84*		-2.73*	.118		-.060	4.86*
		(.730)		(1.54)	(1.65)		(1.85)	(2.54)
Mergers/100 .....			-.295 <sup>+</sup>	.108		1.69*	.323	1.96*
			(.203)	(.281)		(.605)	(.355)	(.709)
Births × deaths/100 .....					-.325*		-.377*	-.377*
					(.108)		(.121)	(.121)
Births × mergers/100 .....						-.117*	-.127*	-.127*
						(.035)	(.036)	(.036)
Deaths × mergers/100 .....							-.130	-.097
							(.112)	(.120)
$\chi^2$ .....	3,200.0	3,202.7	3,202.1	3,206.8	3,215.7	3,214.9	3,207.7	3,228.8
<i>df</i> .....	29	30	30	32	32	32	32	35

NOTE.—SEs in parentheses; significance was calculated using two-tailed *t*-tests for control variables, one-tailed *t*-tests for independent variables. These results cover the work histories of 5,816 managers in 427 firms, who made 8,094 moves (within firms, between firms, or out of the industry) over 26,759 one-year spells. All models include 15 dummy variables to control for job title, which are statistically significant but are not shown, for the sake of clarity.

<sup>+</sup>  $P < .10$ .

\*  $P < .05$ .

TABLE 5  
THE EFFECT OF INDUSTRY DYNAMICS ON THE RATE OF JOB MOVES WITHIN FIRMS

	MODEL								
	1	2	3	4	5	6	7	8	9
Constant .....	-3.92*	-3.76*	-5.03*	-4.85*	-4.32*	-5.19*	-4.69*	-4.93*	-4.33*
	(.549)	(.556)	(.651)	(.577)	(.884)	(.853)	(.706)	(.697)	(1.02)
Tenure in company .....	-.0005	-.001	-.001	.001	.001	-.001	.001	.001	.001
	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)
Tenure in job .....	.003	.003	.003	.003	.003	.003	.003	.003	.003
	(.008)	(.008)	(.008)	(.008)	(.008)	(.008)	(.008)	(.008)	(.008)
Left-truncated history .....	.011	.025	.018	-.019	-.012	-.012	-.013	-.018	-.016
	(.092)	(.092)	(.092)	(.092)	(.093)	(.092)	(.093)	(.093)	(.093)
ln(firm age) .....	-.088*	-.086*	.082*	-.077*	-.077*	-.081*	-.076*	-.077*	-.077*
	(.027)	(.027)	(.027)	(.027)	(.027)	(.027)	(.027)	(.027)	(.027)
ln(assets) .....	.149*	.149*	.145*	.140*	.141*	.144*	.140*	.140*	.140*
	(.022)	(.022)	(.022)	(.022)	(.022)	(.022)	(.022)	(.022)	(.022)
ln(managers) .....	-.681*	-.685*	-.673*	-.652*	-.656*	-.668*	-.655*	-.651*	-.655*
	(.066)	(.066)	(.066)	(.067)	(.067)	(.067)	(.067)	(.067)	(.068)
Firms/100 .....	-.377*	-.424*	-.190	.288	.220	-.175	.222	.301	.267
	(.144)	(.146)	(.154)	(.193)	(.205)	(.194)	(.283)	(.236)	(.340)
Financial employment/100 .....	.083	.004	.042	.141*	.099	.084	.107	.135 <sup>+</sup>	.766
	(.062)	(.074)	(.064)	(.064)	(.079)	(.082)	(.078)	(.072)	(.894)

Unemployment rate	.042 <sup>+</sup>	.031	.051*	.090*	.080*	.055*	.081*	.089*	.076*
	(.024)	(.025)	(.024)	(.026)	(.028)	(.027)	(.035)	(.026)	(.035)
GSP/1,000	-.016	.062	-.191	-.188	-.225	.175	-.151	-.165	-.213
	(.119)	(.125)	(.137)	(.125)	(.175)	(.141)	(.134)	(.169)	(.177)
Births/100	.991*	.991*			.809	-.679	.520		1.26
	(.502)	(.502)			(.822)	(.838)	(1.14)		(1.47)
Deaths/100			-4.88*		1.96	-7.69*		-706	2.21
			(1.58)		(3.06)	(3.35)		(3.80)	(4.88)
Mergers/100				-2.17*	-2.32*		-1.97 <sup>+</sup>	-2.18*	-2.41*
				(.439)	(.574)		(1.21)	(.720)	(1.40)
Births × deaths/100						.184			-.106
						(.232)			(.254)
Births × mergers/100							-.008		-.012
							(.068)		(.069)
Deaths × mergers/100								.027	.094
								(.234)	(.247)
$\chi^2$	703.9	707.8	713.6	729.4	730.3	714.5	730.0	729.4	730.7
df	25	26	26	26	28	28	28	28	31

NOTE.—SEs in parentheses; significance was calculated using two-tailed *t*-tests for control variables, one-tailed *t*-tests for independent variables. These results cover the work histories of 5,816 managers in 427 firms, who made 1,857 moves within a firm over 26,759 one-year spells. All models include 15 dummy variables to control for job title, which are statistically significant but are not shown, for the sake of clarity.

<sup>+</sup>  $P < .10$ .

\*  $P < .05$ .

TABLE 6  
THE EFFECT OF INDUSTRY DYNAMICS ON THE RATE OF JOB MOVES BETWEEN FIRMS

	MODEL								
	1	2	3	4	5	6	7	8	9
Constant .....	-1.41*	-1.26*	-2.43*	-1.67*	-2.36*	-2.06*	-.526	-1.38 <sup>+</sup>	-.050
	(.622)	(.630)	(.730)	(.655)	(.957)	(.923)	(.760)	(.811)	(1.14)
Tenure in company .....	-.030*	-.031*	-.030*	-.029*	-.030*	-.030*	-.029*	-.032*	-.032*
	(.009)	(.009)	(.009)	(.009)	(.009)	(.009)	(.009)	(.009)	(.009)
Tenure in job .....	-.057*	-.056*	-.056*	-.056*	-.056*	-.056*	-.056*	-.057*	-.056*
	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)
Left-truncated history .....	.052	.071	.052	.032	.055	.058	.042	.078	.083
	(.105)	(.105)	(.105)	(.106)	(.106)	(.105)	(.106)	(.106)	(.106)
ln(firm age) .....	-.087*	-.086*	-.086*	-.085*	-.086*	-.083*	-.081*	-.088*	-.082*
	(.032)	(.033)	(.033)	(.033)	(.033)	(.033)	(.033)	(.033)	(.033)
ln(assets) .....	.113*	.115*	.110*	.109*	.111*	.109*	.112*	.117*	.118*
	(.026)	(.026)	(.026)	(.026)	(.026)	(.026)	(.026)	(.026)	(.026)
ln(managers) .....	-.124*	-.133*	-.118*	-.113 <sup>+</sup>	-.119*	-.114 <sup>+</sup>	-.130*	-.158*	-.168*
	(.059)	(.059)	(.059)	(.060)	(.060)	(.060)	(.060)	(.061)	(.061)
Firms/100 .....	-.125	-.162	.053	.081	.035	-.047	-.501	-.402	-1.13*
	(.173)	(.174)	(.185)	(.221)	(.229)	(.218)	(.306)	(.262)	(.352)
Financial employment/100 .....	.284*	.195*	.276*	.325*	.267*	.310*	.220*	.381*	.486*
	(.073)	(.086)	(.074)	(.078)	(.097)	(.100)	(.094)	(.088)	(.115)
Unemployment rate .....	-.029	-.035	-.014	-.009	-.016	-.023	-.073 <sup>+</sup>	.003	-.049
	(.027)	(.027)	(.028)	(.030)	(.031)	(.030)	(.038)	(.031)	(.038)

GSP/1,000 .....	-.818*	-.744*	-.675*	-.912*	-.671*	-.737*	-.817*	-.905*	-1.02*
	(.141)	(.146)	(.152)	(.154)	(.203)	(.157)	(.163)	(.207)	(.217)
Go to new company .....	1.96*	1.96*	1.93*	1.94*	1.93*	1.91*	1.95*	1.95*	1.93*
	(.088)	(.089)	(.089)	(.089)	(.090)	(.091)	(.089)	(.090)	(.091)
Company death .....	1.36*	1.42*	1.48*	1.39*	1.48*	1.48*	1.48*	1.38*	1.39*
	(.220)	(.222)	(.225)	(.221)	(.225)	(.225)	(.223)	(.227)	(.228)
Company merged .....	2.26*	2.26*	2.27*	2.28*	2.27*	2.28*	2.27*	2.26*	2.26*
	(.058)	(.058)	(.058)	(.060)	(.060)	(.059)	(.060)	(.060)	(.060)
Births/100 .....	1.24*	1.24*			.112	-.465	4.18*		1.15
	(.624)	(.624)			(.998)	(.983)	(1.43)		(1.97)
Deaths/100 .....			-5.06*		-4.87+	-10.3*		8.84*	2.67
			(1.95)		(3.76)	(4.51)		(4.88)	(6.50)
Mergers/100 .....				-.750+	.027		2.51*	1.55*	4.92*
				(.506)	(.698)		(1.38)	(.762)	(1.49)
Births × deaths/100 .....						.493+			.814*
						(.313)			(.353)
Births × mergers/100 .....							-.194*	-.157*	-.157*
							(.080)		(.082)
Deaths × mergers/100 .....								-.847*	-1.12*
								(.258)	(.275)
$\chi^2$ .....	2,370.1	2,374.0	2,376.9	2,372.3	2,376.9	2,379.4	2,381.1	2,387.6	2,399.7
df .....	28	29	29	29	31	31	31	31	34

NOTE.—SEs in parentheses; significance was calculated using two-tailed *t*-tests for control variables, one-tailed *t*-tests for independent variables. These results cover the work histories of 5,816 managers in 427 firms, who made 1,392 moves between firms over 26,759 one-year spells. All models include 15 dummy variables to control for job title, which are statistically significant but are not shown, for the sake of clarity.  
+  $P < .10$ .  
\*  $P < .05$

TABLE 7  
THE EFFECT OF INDUSTRY DYNAMICS ON THE RATE OF EXIT FROM INDUSTRY

	MODEL								
	1	2	3	4	5	6	7	8	9
Constant .....	-5.59* (.385)	-5.58* (.385)	-5.66* (.445)	-5.39* (.399)	-6.08* (.595)	-6.07* (.567)	-4.31* (.484)	-5.80* (.457)	-4.56* (.719)
Tenure in company .....	-.022* (.005)	-.022* (.005)	-.022* (.005)	-.022* (.005)	-.022* (.005)	-.022* (.005)	-.022* (.005)	-.023* (.005)	-.021* (.005)
Tenure in job .....	.020* (.006)	.020* (.006)	.020* (.006)	.020* (.006)	.020* (.006)	.020* (.006)	.020* (.006)	.020* (.006)	.019* (.006)
Left-truncated history .....	-.045 (.059)	-.042 (.059)	-.044 (.059)	-.038 (.059)	-.031 (.059)	-.048 (.059)	-.043 (.059)	-.027 (.059)	-.062 (.059)
ln(firm age) .....	-.038* (.017)	-.038* (.018)	-.038* (.018)	-.042* (.018)	-.039* (.018)	-.040* (.018)	-.037* (.018)	-.040* (.018)	-.038* (.018)
ln(assets) .....	-.068* (.014)	-.068* (.014)	-.068* (.014)	-.065* (.015)	-.066* (.015)	-.065* (.015)	-.066* (.015)	-.066* (.015)	-.066* (.015)
ln(managers) .....	.229* (.033)	.228* (.033)	.229* (.033)	.224* (.033)	.226* (.034)	.225* (.034)	.213* (.034)	.223* (.034)	.213* (.034)
1974 and low .....	1.07* (.070)	1.07* (.070)	1.07* (.070)	1.06* (.070)	1.05* (.070)	1.05* (.070)	1.11* (.072)	1.04* (.077)	1.12* (.079)
Firms/100 .....	.501* (.100)	.493* (.101)	.512* (.105)	.352* (.125)	.345* (.137)	.673* (.132)	-.175 (.183)	.284* (.157)	.100 (.232)
Financial employment/100 .....	.154* (.046)	.140* (.054)	.151* (.047)	.131* (.048)	.111* (.060)	.047 (.062)	.090 (.058)	.093* (.052)	.016 (.065)

Unemployment rate .....	.112*	.111*	.112*	.099*	.099*	.127*	.034	.097*	.050 <sup>+</sup>
	(.019)	(.019)	(.019)	(.020)	(.021)	(.021)	(.026)	(.021)	(.028)
GSP/1,000 .....	.182*	.198*	.195*	.235*	.413*	.287*	.274*	.391*	.245 <sup>+</sup>
	(.088)	(.094)	(.098)	(.092)	(.124)	(.099)	(.103)	(.120)	(.128)
Company death .....	1.29*	1.30*	1.30*	1.27*	1.29*	1.29*	1.29*	1.29*	1.30*
	(.091)	(.092)	(.093)	(.092)	(.093)	(.093)	(.093)	(.093)	(.093)
Company merged .....	1.31*	1.32*	1.32*	1.30*	1.30*	1.30*	1.30*	1.30*	1.30*
	(.037)	(.037)	(.037)	(.037)	(.037)	(.037)	(.037)	(.037)	(.037)
Births/100 .....	.153	.153	.153	.153	.153	.153	.153	.153	.153
	(.305)	(.305)	(.305)	(.305)	(.305)	(.305)	(.305)	(.305)	(.305)
Deaths/100 .....	-.286	-.286	-.286	-.286	-.286	-.286	-.286	-.286	-.286
	(.919)	(.919)	(.919)	(.919)	(.919)	(.919)	(.919)	(.919)	(.919)
Mergers/100 .....	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*
	(.824)	(.824)	(.824)	(.824)	(.824)	(.824)	(.824)	(.824)	(.824)
Births × deaths/100 .....	-.727*	-.727*	-.727*	-.727*	-.727*	-.727*	-.727*	-.727*	-.727*
	(.135)	(.135)	(.135)	(.135)	(.135)	(.135)	(.135)	(.135)	(.135)
Births × mergers/100 .....	-.178*	-.178*	-.178*	-.178*	-.178*	-.178*	-.178*	-.178*	-.178*
	(.048)	(.048)	(.048)	(.048)	(.048)	(.048)	(.048)	(.048)	(.048)
Deaths × mergers/100 .....	-.043	-.043	-.043	-.043	-.043	-.043	-.043	-.043	-.043
	(.160)	(.160)	(.160)	(.160)	(.160)	(.160)	(.160)	(.160)	(.160)
$\chi^2$ .....	2,735.7	2,735.9	2,735.8	2,739.7	2,744.4	2,764.7	2,755.4	2,744.0	2,782.8
<i>df</i> .....	28	29	29	29	31	31	31	31	34

NOTE.—SEs in parentheses; significance was calculated using two-tailed *t*-tests for control variables, one-tailed *t*-tests for independent variables. These results cover the work histories of 5,816 managers in 427 firms, who made 4,845 exits from the industry over 26,759 one-year spells. All models include 15 dummy variables to control for job title, which are statistically significant but are not shown, for the sake of clarity.

\*  $P < .10$ .

\*  $P < .05$ .

Model 2 adds births and shows a positive relationship between organizational founding and rates of job shifts within firms, which supports hypothesis 1. In model 3, the dissolution of existing firms has a negative effect on intraorganizational mobility, which supports hypothesis 4. Organizational merger also strongly diminishes intraorganizational mobility, which supports hypothesis 7. Model 5 brings all three ecological processes together and shows that only the effect of merger remains statistically significant.

Models 6–9 investigate interactions between these ecological processes. These models show no statistically significant interactions, indicating that organizational founding and failure (dissolution and merger) neither reinforce nor dampen each others' effects on movement between jobs within firms. These models fail to improve fit to the data relative to models containing only main effects, according to the chi-square likelihood-ratio test. These results offer no support for hypotheses 11, 14, or 17.

*Moves between organizations.*—Table 6, which shows results for the analysis of interorganizational job shifts, is laid out in the same manner as table 5. It starts with a baseline model containing control variables (including an indicator variable for movement into a newly founded firm and indicator variables for movement out of the focal firm due to merger or dissolution) and assesses the effect of each independent variable separately. The direct effects of ecological processes are strong and positive, as expected. Model 2 shows that the birth of new firms indirectly increases the rate of job shifts across firms. This indirect effect operates in addition to the strong direct effect captured by the indicator variable for movement into a newly founded firm. Both the direct and indirect effects of organizational birth are positive, supporting hypothesis 2. Model 3 shows that the death of existing firms has a negative effect on movement between firms, after controlling for the direct positive effect of dissolution of the focal firm. This result supports hypothesis 5. Model 4 shows that merger has a negative and marginally significant ( $P < .06$ ) effect on interorganizational mobility, after controlling for the positive direct effect of merger of the focal firm. This result offers no support for hypothesis 8. In model 5, which includes all three variables together, only the effect estimate for dissolution remains significant, and that only at the .10 level.

We examine interactions among these ecological processes next. Model 6 shows a positive effect of the interaction between birth and dissolution, as predicted by hypothesis 12; however, this effect is only marginally significant ( $P < .06$ ). Note that the main effect for birth is rendered nonsignificant, while the main effect for dissolution almost triples in magnitude. The total impact of organizational dissolution (main effect plus interaction) is negative. Model 7 shows a different pattern for the interaction between birth and merger: positive main effects, negative

interaction. This result is opposite to the prediction of hypothesis 15. The total effects of birth and merger (main effects plus interactions) are positive. Model 9 shows a negative interaction between dissolution and merger and positive main effects, as predicted by hypotheses 2, 8, and 18. Finally, model 9 incorporates all main effects and interactions. Only one main effect, for merger, is statistically significant. The interactions show the same pattern as before: positive interaction between birth and dissolution, negative between birth and merger, negative between dissolution and merger.

*Exit from the industry.*—Table 7 investigates exit from the industry. Again, we start with a baseline model containing control variables (including controls for dissolution and merger of the focal firm) and then add the variables measuring industry dynamics. As expected, dissolution and merger of the focal firm have strong positive effects on the rate of exit from the industry. Model 2 shows that the birth of new organizations has, as predicted by hypothesis 3, no impact on exit from the industry when general economic conditions are controlled. In results not shown here, we dropped the variables measuring financial-services employment, unemployment rate, and gross state product and found a strong positive coefficient for birth. This indicates a spurious effect: organizational birth in this industry is correlated with general economic climate. When there is a large number of births, there is also a large number of exits from the industry, which probably represent movement into other flourishing industries. In model 3, the dissolution of existing organizations has a negative but nonsignificant effect on the rate of exit of managers from this industry, after controlling for the positive direct effect of dissolution of the focal firm. This result fails to support hypothesis 6. Model 4 shows that merger increases the rate of exit of managers from this industry, after controlling for the positive direct effect of merger of the focal firm, as predicted by hypothesis 9. In model 5, which contains all three independent variables, the negative effect of dissolution becomes statistically significant and the positive and significant effect of merger is strengthened. The effect of birth, as predicted, remains nonsignificant.

Interactions between founding and failure processes appear to be strong. Model 6 shows a negative effect for the interaction between birth and dissolution, while model 7 shows a similar negative effect for the interaction between birth and merger. These results support hypotheses 13 and 16. Note that in model 6 the formerly negative effect of dissolution is rendered strongly positive and statistically significant, supporting hypothesis 6. Model 8, however, shows no interaction between dissolution and merger, which fails to support hypothesis 19. The fully specified model shows that all main effects and two out of three interactions are statistically significant. These results indicate that the rate of mobility out

TABLE 8  
MULTIPLIER EFFECTS FOR INDEPENDENT VARIABLES

INDEPENDENT VARIABLE	MOVES BETWEEN FIRMS			EXITS FROM INDUSTRY					
	$\beta$	Mult		$\beta$	Mult				
Direct effect:									
Birth .....	1.957	7.078							
Dissolution .....	1.478	4.384	1.295			3.651			
Merger .....	2.275	9.728	1.301			3.673			
	MOVES WITHIN FIRMS			MOVES BETWEEN FIRMS			EXITS FROM INDUSTRY		
	$\beta$	Mult $_{\mu}$	Mult $_{max}$	$\beta$	Mult $_{\mu}$	Mult $_{max}$	$\beta$	Mult $_{\mu}$	Mult $_{max}$
Indirect effect:									
Birth .....	.0099	1.104	1.306	.0124	1.132	1.398	NS		
Dissolution .....	-.0488	.934	.677	-.0506	.932	.677	NS		
Merger .....	-.0217	.772	.489	-.0075	.914	.781	.0052	1.064	1.187
Effect with interactions.									
Birth .....				.0042	1.043	1.120	.0179	1.195	1.620
Dissolution .....				-.0256	.965	.815	.0214	1.030	1.186
Merger .....				.0179	1.237	1.802	.0123	1.158	1.503

NOTE.—NS indicates that a parameter estimate was not statistically significant at the .05 level, two-tailed *t*-tests. For an explanation of the multiplier (Mult) effect calculations, see app. B.

of the industry, while spurred by both organizational failure processes, is attenuated by high levels of industry turmoil. Organizational founding cancels out a large part of the impact of organizational failure.

*Comparing the three types of moves.*—The effects of the three ecological processes differ greatly across the three types of job shift. These differences can be more easily understood by translating effect estimates to multipliers (Mults) of the various mobility rates. Hazard rate models are multiplicative rather than additive. For any continuous variable *X*, that variable's average impact on the rate of mobility can be calculated as follows:  $Mult = \exp(\beta X)$ , where  $\beta$  is the parameter estimate and *X* is the mean value of the variable. The impact of a continuous variable thus depends on the parameter estimate and the value of that variable. For any indicator variable (value = 0 or 1), its impact on the rate of mobility is simply  $\exp(\beta)$ , which shows the increase or decrease in the mobility rate when that indicator variable shifts from zero to one. Table 8 presents multipliers for the direct effects of the ecological processes. It also shows multipliers for the indirect effects of these processes, calculated at two values: the mean of each independent variable and its maximum observed value. Finally, this table presents calculations of the total impact (main effect plus statistically significant interactions) for all three ecological processes.

Consider the direct effects first, as they are simplest. When managers in this industry move between firms in the industry, they are seven times more likely to move into a newly founded firm than they are to move into an older, established firm. When managers in this industry move between firms, they are likely to do so by leaving a dissolved or merged firm: the rate of interorganizational mobility is increased fourfold by organizational dissolution and almost tenfold by merger. Finally, when managers in this industry leave the industry (for jobs in other industries, retirement, unemployment, or further schooling), they most likely do so by leaving dissolved or merged firms: the rate of exit from the industry is increased almost four times by both of these processes.

The indirect effects of organizational birth are consistent. For two out of three outcomes, they are positive and of similar magnitude: on average, birth increases intraorganizational and interorganizational mobility rates 10.4% and 13.2%, respectively, while the maximum impacts are 30.6% and 39.8%, respectively. For the third outcome, exit from the industry, the effect is null after controlling for general economic conditions and positive without those controls. These results are intuitively appealing, since the creation of new organizations opens many new managerial jobs and thereby starts new managerial vacancy chains, which pull people up within firms and across firms. The positive effect for exit occurs only when we omit controls for general economic conditions, indicating a spurious relationship between thrift founding rates, general economic climate, and rates of exit from the thrift industry to other industries.

The indirect effect of organizational dissolution is negative for movement within firms and between firms in the industry and positive but nonsignificant for exit from the industry (until we include interactions). On average, dissolution lowers intraorganizational and interorganizational mobility rates by 6.6% and 6.8%, respectively. These results make sense when considered from the perspective of chains of mobility. The death of a savings and loan association has the direct effect of pushing managers out into jobs in other thrifts. But this process also has the indirect effect of shutting down mobility chains that operate across firms and thus has negative indirect effects on movement within and between firms in this industry. When we control for interactions between firm birth and dissolution, the main effect of dissolution is positive. This indicates that employees shut out of the mobility chains that remain in surviving organizations are forced to exit the industry.

The indirect effects of organizational merger also vary, being negative for intra- and interorganizational mobility and positive for exit from the thrift industry. On average, merger reduces intraorganizational mobility by 22.8%. Merger has smaller impacts on interorganizational mobility

and exit from the industry. It reduces interorganizational mobility by 8.6% and boosts exit from the industry by 6.4%. Merger directly increases interorganizational mobility and exit from the industry, consonant with previous empirical research on merger and managerial turnover (Unger 1986; Walsh 1988), hence the strong positive effect of merger of the employing company on interorganizational mobility and exits from the industry. But merger has the indirect effect of dampening the mobility of individuals other than those in the acquired firms, because it closes vacancy chains, freezing many individuals in their current positions, thereby reducing intraorganizational and interorganizational mobility rates. The positive indirect effect of merger on exit from the industry stems from the downsizing that follows merger, when many employees of the acquiring firm leave the industry.

As noted above, we found no effect of interactions between ecological processes on intraorganizational mobility but strong effects of interactions for the other two types of mobility. For any independent variable, its total impact can be calculated as follows:

$$\text{Mult} = \exp(\beta_1 X_1 + \beta_2 X_1 X_2 + \beta_3 X_1 X_3),$$

where  $X_1$  is the independent variable of interest,  $X_2$  and  $X_3$  are the average values of the moderating variables,  $\beta_1$  is the main effect estimate, and  $\beta_2$  and  $\beta_3$  are the interaction effect estimates. In other words, the impact of any variable depends on its level, the levels of moderating variables, and all parameter estimates (main effect and interactions). Table 8 presents overall multiplier effects calculated using the results of model 9 in tables 5, 6, and 7. For each independent variable, the complete multiplier effect is calculated at two values (the mean and the maximum of the variable of interest), and the interaction effects are calculated at the average of the moderating variables. For instance, the overall impact of birth on interorganizational mobility, controlling for the moderating effects of dissolution and merger, is calculated as follows:

$$\begin{aligned} \text{Mult} &= \exp[(.0115 + .00814 \times 1.40 - .00157 \times 11.92) \times \text{Births}] \\ &= \exp[.0042 \times \text{Births}], \end{aligned}$$

where Births is the number of firm births and the average number of dissolutions and mergers across the observation period are 1.40 and 11.92, respectively. At the mean level of birth (9.98), this translates to an increase of 4.3% in interorganizational mobility.

On average, the total impacts of dissolution and merger (main effects plus statistically significant interactions) are negative and positive, respectively. Including interactions with birth and merger attenuates the negative effect of dissolution on interorganizational mobility. Including

interactions with birth and dissolution reverses the sign of the merger effect on interorganizational mobility, from negative to positive. For exit from the industry, incorporating interactions increases the magnitude of merger and dissolution effects.

Compare the magnitudes of the effects of ecological processes and their levels of statistical significance for interorganizational mobility versus intraorganizational mobility and exit from the industry. Hypothesis 10 predicts that ecological processes will have a greater impact on interorganizational (intraindustry) mobility than on intraorganizational or inter-industry mobility. In general, this hypothesis was supported. First, the main effects (direct plus indirect) of all three ecological processes on interorganizational mobility were always larger in magnitude than the main effects on intraorganizational mobility or exit from the industry. Second, we found no effect of interactions between ecological processes for intraorganizational mobility but strong evidence of interactions for interorganizational mobility and exit from the industry. For instance, considering main effects only, the indirect impact of birth on interorganizational mobility is 25% greater than its impact on intraorganizational mobility (13.2% vs. 10.4%). While the indirect impact of dissolution on interorganizational mobility is almost identical to that on intraorganizational mobility (6.8% vs. 6.6%), the direct impact of dissolution on interorganizational mobility also has to be considered. On average, the indirect impact of merger on intraorganizational mobility is greater than the indirect impact on interorganizational mobility (22.8% vs. 8.6%), but when the direct impact of merger on interorganizational mobility is added, the overall result supports hypothesis 10. Neither birth nor dissolution had statistically significant effects on exit from the industry, although the parameter estimate for dissolution was rendered significant after interaction terms were introduced. The average indirect impact of merger on exit from the industry was smaller in magnitude than this variable's average indirect impact on interorganizational mobility (6.4% vs. 8.6%). The direct effect of merger and dissolution on exit from the industry was also smaller than the direct effect on interorganizational mobility ( $\text{Mult} > 4$  vs.  $\text{Mult} < 4$ ). Our results thus offer considerable support for hypothesis 10.

## CONCLUSIONS

In this article, we proposed that a hitherto ignored set of factors can explain much of the variation in individual career movement. Specifically, we proposed that the vital processes of employing organizations—birth, merger, and dissolution—have strong effects on the rate of movement of individual employees both within and between employing

organizations. We found strong support for this proposition when we investigated the movement of managers in the California savings and loan industry over 20 years. Organizational founding and failure are directly responsible for a large proportion of managerial job shifts in this industry and affect directly a large fraction of the industry's managerial employees. Moreover, organizational birth, dissolution, and merger in this organizational population have substantial and varied effects on internal and external mobility.

Our first aim is to reframe research on career mobility. We hope to expand theorists' conceptions of labor markets to include the dynamics introduced by organizational founding and failure. The results presented here demonstrate that such processes have strong effects on career mobility in one industry. Both the direct and indirect effects of organizational birth and death are considerable. But these processes are ignored in models that assume employing organizations to be permanent fixtures in labor markets. Researchers studying social mobility processes must recognize the changes wrought in labor markets by ecological processes such as founding and failure; therefore, they must incorporate a new set of explanatory factors in their models. The specifics of labor-market dynamics may differ between industries. For example, the skills of newspaper publishers may be more easily transferred to other industries than are the skills of thrift managers. While the effects of industry dynamics on career mobility would likely be attenuated if individuals did not build up firm- or industry-specific skills, these effects would still not be eliminated completely.

In this study, we were unable to examine how individual characteristics interact with structural changes to influence career mobility, because the only individual-level data we have concern tenure and job title (level and function). This limitation is serious, for much previous research has demonstrated that individual characteristics, such as education and socioeconomic background, interact with structural forces to determine career outcomes. For instance, workforce experience buffers employees from labor-market turbulence (DiPrete 1993). We contend, however, that our results demonstrate strong and interesting effects of social-structural dynamics, on career processes. These effects have generally been ignored by even the most sophisticated theories of individual-structure interaction. Research on social stratification and mobility would take a huge leap forward if it applied our model and findings to richer data sources and assessed the interplay between individuals and social structure in fully dynamic contexts.

Future research ought to complicate the picture and look more closely at different types of job shifts, considering the differential impact of

organizations' vital processes on upward, downward, and lateral moves. Incorporating information on organizational birth, dissolution, and merger processes would facilitate distinguishing between voluntary and involuntary job shifts.

Another fruitful avenue of investigation would be to study the movement of individuals in one profession or one occupation between jobs in many different organizational populations. For instance, researchers could assess the impact of the shifting demography of health care organizations on the mobility and status attainment of doctors, nurses, and members of other health care occupations. How has the rise of new corporate forms of health care (e.g., health maintenance organizations, preferred-provider organizations, and multihospital systems) affected the career trajectories and incomes of doctors practicing various specialties? How have such trends affected the form and duration of employment relations for health care professionals? Research that addressed such questions would bring us full circle and would make clear why organizational diversity is important by revealing the effects of such diversity on the careers of individuals (Hannan 1988; Hannan and Freeman 1989, pp. 7–10).

Our second aim is to expand the scope of research in organizational ecology to encompass more than just the processes of organizational founding, failure, and change. This study has brought to light a new set of phenomena for empirical investigation by organizational ecologists. In doing so, we demonstrated that the ecological paradigm is well suited to addressing the question of how macro social structure influences micro outcomes through the medium of formal organizations (McPherson 1983). We have moved closer to bringing the study of organizations back into the mainstream of sociology by reorienting research on organizations so that it speaks to fundamental problems of social organization and social change (Hannan and Freeman 1989, pp. 1–44). In this study, we demonstrated the consequences of shifting organizational diversity for social mobility processes, which theorists have labeled as a major discovery for organizational ecology (Hannan 1988; Hannan and Freeman 1989, pp. 28–44; Hannan and Carroll 1992, p. 206).

This study has by no means exhausted the potential application of organizational ecology to the study of other social phenomena. Future research could examine directly the micro-structural consequences of ecologically induced career mobility, specifically investigating how movement of individuals into and out of employing organizations affects the demographic composition of these organizations (i.e., the distribution of these organizations' workforces in terms of such attributes as gender, race, age, and tenure). Linking ecological processes to organizational

demography may provide a way to explain the demographic metabolism of organizations—individuals' entry into and exit from organizations—which is of great importance for studying organizational change.

APPENDIX A

TABLE A1

DESCRIPTION OF VARIABLES USED IN TABLE 2 AND TABLES 4-7

Variable	Description	Values
Move within .....	Manager changed jobs within a firm	Yes = 1
Move out .....	Manager moved from one firm to another	Yes = 1
Exit .....	Manager left the California savings and loan industry	Yes = 1
Births .....	No. of firms created	
Deaths .....	No. of firms dissolved	
Mergers .....	No. of firm mergers	
Company death .....	Company dissolved that year	Yes = 1
Company merged .....	Company merged that year	Yes = 1
Go to new company .....	Manager moved to a new company that year	Yes = 1
Tenure in company .....	Manager's tenure in the firm	Years
Tenure in job .....	Manager's tenure in the job	Years
Left-truncated history .....	Left-truncated work history, manager entered industry before 1969	Yes = 1
Title .....	Manager's job title	Coded on a 16-point scale from "chairman" = 1 to "assistant vice president" = 16
1974 and low .....	Indicator for a manager at the VP level or lower whose name appeared in the 1974 but not the 1975 reports	Yes = 1
ln(firm age) .....	Log (firm age)	Years
ln(assets) .....	Firm size as measured by assets	Millions of dollars
ln(managers) .....	Firm size as measured by the no. of managers	<i>N</i> managers
Firms .....	California savings and loan industry density	<i>N</i> thrifts
Financial employment ...	Total employment in the California financial services industry	Thousands of employees
Unemployment rate .....	California unemployment rate	Percentage
GSP .....	California gross state product	Millions of dollars

## APPENDIX B

## Explanation of Multiplier Effect Calculations

For the direct effects of ecological processes (company birth, death, or merger, represented by binary variables coded "0" or "1"), where the estimated parameter is  $\beta$ , the multiplier (Mult) =  $\exp(\beta)$ . For the indirect effects of ecological processes, multipliers are calculated using the following formula:

$$\text{Mult} = \exp(\beta X),$$

where  $\beta$  is the effect estimate for the independent variable of interest and  $X$  is the value of that variable. The multiplier effect of each independent variable is estimated at two different values: the mean (Mult <sub>$\mu$</sub> ) and the maximum observed value (Mult<sub>max</sub>). The cumulative impact of each ecological process (main effect + interaction effects) is calculated similarly:

$$\text{Mult} = \exp(\beta_1 X_1 + \beta_2 X_1 X_2 + \beta_3 X_1 X_3),$$

where  $\beta_1$  is the estimated main effect,  $\beta_2$  and  $\beta_3$  are the estimated interaction effects,  $X_1$  is the value of the variable of interest, and  $X_2$  and  $X_3$  are the mean values of the moderating variables. Only statistically significant interactions are included in the total multiplier. Increases or decreases in the rate of mobility can be calculated as  $\text{Mult} - 1$ . For example, the multiplier for the indirect effect of the industry birthrate on the rate of mobility within firms, calculated at the mean value of the birthrate, is 1.104, which translates into an average 10.4% increase in this type of mobility caused by firm births.

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