Careers in Organizations: An Ecological Perspective

Glenn R. Carroll
UNIVERSITY OF CALIFORNIA, BERKELEY
Heather Haveman
DUKE UNIVERSITY
Anand Swaminathan
UNIVERSITY OF CALIFORNIA, BERKELEY

Abstract

Recent sociological theory and research on careers in the paid labor force has become increasingly structural and macroscopic. Many promising lines of inquiry use formal organizations in a central way. These studies typically map structural characteristics of organizations and their environments onto differential rates of movement by individuals over their working lives. In general, this approach assumes a focal organization perspective and an adaptationist imagery. By doing so, it cannot explore how career patterns might be accounted for by the dynamics of organizational populations. Other structural approaches do little better since they typically deemphasize organizational factors altogether. Empirical research in other fields suggests that ecological dynamics of organizational populations might explain a substantial amount of career mobility, especially that related to job turnover. We review and evaluate these findings. We propose ways that theories and methods from organizational ecology might be used to research these topics. In general, the analysis suggests that life course research on careers needs to be even more macrosociological, more contextual, than is widely recognized.

Published in: *Life-Span Development and Behavior*

I. Introduction

Over the last 2 decades, life-span research on careers in the paid labor force has become increasingly structural and macroscopic. This trend is readily seen within sociology. Earlier sociological research focused on the effects of individuals' characteristics on their unfolding careers, e.g., educational credentials and preparations; the residual impacts of having been reared in richer versus poorer families or in White versus African American households (i.e., Blau & Duncan, 1967; Featherman & Hauser, 1978). This tradition is quite consistent with the individual-level focus of psychological research on career development (e.g., Holland, 1973; Super, 1957). The newer structuralist tradition in sociology has augmented these individual-level analyses by emphasizing rather stable social class boundaries (Goldthorpe, 1980), semipermeable industry sectors (Stinchcombe, 1979), and labor markets within formal organizations (Baron & Bielby, 1980) as contextual constraints and opportunities on employment and career pursuits. Both of these lines of inquiry have produced impressive insights and continue to make additional progress (Carroll & Mayer, 1986).

However, the structuralist agenda in life course research remains incomplete, despite the importance attached to contextual dynamics by life-span and life course scholars. Most research on work careers is ahistorical or static in orientation, even though sociologists and psychologists increasingly use detailed longitudinal employment histories (often collected retrospectively) to discern career lines and developmental trajectories. The staticity is inherent in the orienting frameworks assumed for theory and research. In most structuralist research, the framework uses an existing formal organization as the focal point; individuals' careers are studied as byproducts of organizational characteristics, and organizations are the ultimate units of analysis for theory construction and testing. This approach also implicitly adopts an adaptational model of organizational change. Other structuralist approaches, cast at higher levels of analysis, usually downplay organizational factors altogether.

The limitations of using an adaptational model of organizational change become apparent when general organization theory is considered. In that field, after 20 years of reigning supreme, the adaptational model has now been supplanted by a model of selectional organizational change (Aldrich & Marsden, 1988). The selection model begins with a population of organizations, i.e., employing firms as the unit of analysis. It posits that change over time occurs primarily through the selective entry and replacement of individual organizations (i.e., the founding and later mortality of firms) and secondarily through the internal transformation of existing or remaining firms in the population (Hannan & Freeman, 1989). This sociological perspective, known as organizational ecology, has generated a tremendous amount of new empirical research and insight into change processes within and among formal organizations such as employing business firms (see

Carroll, 1984, for a review). Organizational ecology, however, has not had much impact on life course research. For example, it has not influenced studies about individuals' abilities to change jobs in orderly versus disorderly career lines (e.g., Spilerman, 1977). In a recent review, for instance, Stewman (1988) writes:

> [A] largely unexplored area of important research would appear to be at the interface of organizational demography and population ecology. To date, organizational ecologists have focused on organizational death rates (Freeman, Carroll, & Hannan, 1983) 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. Moreover, organizational mergers and relocations are also pertinent to the mortality rates of jobs. (pp. 180–181)

In short, life-span theories about careers need to catch up with theories about organizations.

Our goal in this chapter is to explore some of the ways that organizational ecology might be used for life-span research about careers in organizations. At the most general level, we seek to know where the selection model leads in this context: Is its usage warranted? What are the consequences? Does it generate any new insights? We examine these issues by first reviewing the body of extant theory and research on job turnover and careers in organizations. We identify and discuss the limitations of this work. We then review a number of empirical studies of the impact of organizational dynamics on job mobility in the American economy. These studies are drawn from a variety of other research areas including labor economics. From this review we derive estimates of the strength of different ecological processes including organizational growth and decline, firm founding and mortality, mergers and acquisitions, and corporate restructuring.

This exercise leads to the rather startling general conclusion that ecological organizational dynamics account for a major portion of overall career mobility at the individual level, especially that occurring with turnover and job shifts across organizations. The processes we consider suggest that organizational ecology can explain most downward mobility (i.e., changes in socioeconomic status or income), much mobility into managerial positions, and a substantial amount of upward mobility. Such observations compel the use of ecological ideas and findings to study careers in organizations. So in the latter part of this chapter we review and develop several general approaches and a few specific ones. For the most part these represent new and different lines of structuralist research on mobility and stratification.

Before we begin, some conventions need to be clarified. Following much recent sociological research (Felmlee, 1962; Halaby, 1982; Skvoretz, 1984; Sorensen, 1975, 1983; Sorensen & Tuma, 1981; Spilerman, 1977; Tuma, 1976), we conceptualize work careers as sequences of discrete jobs with associated rewards. Consistent with this approach, we theorize about jobs, rates of move-

ment between them, and their relative rewards rather than about income trajectories. We refer throughout to *ecological* mobility, which we define very broadly as movement across jobs prompted by the dynamics of organizational populations.[1]

II. Structuralist Approaches to Careers

Structuralist research on careers can be usefully divided into two related bodies of work defined by the level at which theoretical arguments are cast. The first body assumes an organizational level of analysis and posits theory from the perspective of an individual organization. Such arguments typically focus on the factors associated with mobility within the organization, although there are obviously direct implications for external mobility as well. The second body of structuralist research emphasizes larger social structures such as social class and industrial sector (i.e., manufacturing, professional services). While there is debate as to whether this higher level of analysis is justified (Baron & Bielby, 1980, 1984; Diekmann, Voss, & Ziegler, 1985; Hodson & Kaufman, 1982), the matter is far from being resolved. Confusion sometimes arises over the fact that structural arguments about class or sector usually imply differences in mobility for dissimilar organizations and empirical research is often concerned with only these implications. When properly specified, however, these arguments imply structural effects in addition to those embodied in formal organizational structure.

A. ORGANIZATIONAL MODELS OF MOBILITY

Research on mobility within organizations typically focuses on the characteristics and effects of established internal labor markets. By Doeringer and Piore's (1971) definition, an internal labor market is:

> an administrative unit, such as a manufacturing plant, within which the pricing and allocation of labor is governed by a set of administrative rules and procedures. The internal labor market . . . is to be distinguished from the *external labor market* of conventional economic theory where pricing, allocating, and training decisions are controlled directly by economic variables (pp. 1–2) (emphasis in the original)

The boundaries between such an enclosed market and the larger labor market mean that the usual effects of social class and industrial sector will be muted for

[1]Ecological mobility bears some similarity to the concepts of structural mobility and frictional mobility but is nonetheless different. *Structural* mobility refers to forced mobility, or "mobility engendered by intertemporal changes in the occupational structure" (Sobel, 1983, p. 721). *Frictional* mobility refers to turnover caused by fluctuations in firm size uncorrelated with regional or industry employment trends (Leonard, 1987, p. 142).

internal mobility. That is to say, mobility within an organization tends to be rationalized according to some personnel plan, be it implicit or explicit (Weber, 1968). However, a person's mobility chances are also affected by his or her location within the structure of the organization itself.

Two streams of organizational research on mobility have developed, one focusing on organizational demography, the other based on dimensions of organizational structure. We review each in turn.

Demographic Models. Research on organizational demography usually involves the analysis over time of career mobility patterns within a single, large organization. Early work of this kind includes that of White (1970), Bartholomew (1973), Keyfitz (1973), and Rosenbaum (1979, 1984). Demographic research identifies the following structural factors as affecting mobility within and across organizations: rates of organizational growth and decline, the distribution of employee cohorts, early career history, vacancy chains and career lines.

Organizational growth and decline rates sometimes exercise uniform effects over all individuals within organizations. In general, organizational growth leads to faster promotions, but at a diminishing rate. Keyfitz (1973, 1980) finds that a decrease in organizational size has a greater effect on promotion rates than an equivalent increase in size. Also, promotion at the top of the hierarchy is less affected by organizational growth. Exits by individuals and organizational growth affect promotion chances to a more or less equal degree (Stewman & Konda, 1983). Organizational growth and decline also lead to increased rates of mobility across organizations (Diekmann & Preisendoerfer, 1988; Preisendoerfer & Burgess, 1988). For growing organizations, entry rates increase to fill positions in the expanding hierarchy; for declining organizations, exit rates rise as extra positions are eliminated.

Organizational growth and decline also have implications for the status and wage attainment processes. For example, those employees entering the Defense and State Departments in the Great Society (1963–65) and Vietnam War (1966–68) periods enjoyed greater occupational prestige and salaries at entry than those in other branches of Government. This advantage was neutralized in later years when the Defense and State Departments contracted (Grandjean, 1981).

Organizations also show cohort differences in mobility (Bruederl, Preisendoerfer, & Ziegler, 1989a; Ryder, 1965). Members of large cohorts have lower promotion chances (Easterlin, 1961, 1968; Keyfitz, 1973; Stewman & Konda, 1983). Smaller cohorts also have higher exit rates, thus creating even greater promotion chances for those who remain.

Cohort cohesion has been used to predict individual turnover rates, the assumption being that greater consensus about work exists within cohorts than across them (Pfeffer & Moore, 1980). Large gaps between cohorts are thought to generate intercohort conflict and a subsequent increase in turnover rates (Mc-

Cain, O'Reilly, & Pfeffer, 1983). Also, work groups consisting of members with similar lengths of service have lower turnover rates (Wagner, Pfeffer, & O'Reilly, 1984).

Early career mobility may have a long-term impact on subsequent career chances. Based on Turner's (1960) earlier work on "contest" and "sponsored" mobility, Rosenbaum (1979, 1984) proposes a model of "tournament" mobility. This model conceptualizes individual careers as a sequence of competitions. Winners have the opportunity of competing for higher levels, but are not assured of attaining them. Losers either compete for lower levels or are denied the opportunity to compete further. It follows from this model that the winners' cohort gets smaller with each successive stage. An examination of career mobility patterns among a cohort of employees in a large corporation over a 13-year period supports the model. Upward mobility in the earliest period of a career results in higher career ceilings, higher career floors, and greater chances for promotion in each successive period. Individuals attaining higher grade levels in their careers move faster than others at each lower grade (Bruederl, Diekmann, & Preisendoerfer, 1989b; Stewman & Konda, 1983). Correspondingly, individuals are also less likely to quit an organization as the level of individual achievement within the organization increases (Petersen & Spilerman, 1989).

Other demographic research focuses on the structure of opportunity within organizations. Studies of vacancy chains (for example, Osterman, 1984; Stewman & Konda, 1983; White, 1970; Young & Vassilou, 1974) assume that this structure is generated by vacancies occurring at higher levels in the organizational hierarchy. There also seems to be greater movement than expected between "mobility clusters," defined as a limited set of jobs within which an individual is usually promoted, demoted, or transferred (Osterman, 1984). Stewman and Konda (1983) also suggest that in a seniority- or performance-based system promotions occur without job or occupation change. In a vacancy-based system, however, filling jobs internally must imply some job or occupational change.

Closely related to vacancy chains is the concept of career lines. Career lines are created when labor pools are isolated from one another through the presence of separate seniority ladders (Spilerman, 1977). Even individual attributes such as educational attainment provide rewards either through access to high-status career lines, or through differential upward mobility.

Career lines may be organized according to demographic characteristics such as race and sex. DiPrete's (1987) analysis of mobility patterns within federal agencies from 1962 to 1977 shows that upward-mobility programs instituted during this period allowed lower-level employees to move into entry-level administrative positions. Use of internal promotion as a means of filling entry-level administrative positions largely benefitted women and minorities. DiPrete and Soule (1986) find similar effects in their analysis of status promotions in a single federal agency in the 1970s. Status promotions were defined as job changes that

allow an individual to move from a lower-level (clerical or technical) to a higher-level (administrative or professional) position within the federal hierarchy.

Models of Organizational Structure. Early organizational research on mobility drew connections between structural characteristics (such as job authority, organizational size, and departmental location) and the wage and status attainment processes (for overviews, see Baron, 1984; Baron & Bielby, 1980; Preisendoerfer, 1987). Recent work in this tradition addresses issues such as the determinants of internal labor markets, sex segregation in jobs, fragmentation of work, and the opportunity structure within organizations. The research design typically involves the analysis of cross-sectional data on a sample of different organizations. We describe next some of the findings generated by this type of research.

Job characteristics such as the extent of authority exercised by individuals account for some important differences in status and income. Kluegel (1978) finds that the average job authority of Black men was lower than that of White men in a pooled sample of nonfarm employed males from the state of Wisconsin. As much as half of the difference in job authority can be explained by the lack of access to higher-status occupations and by exclusion from jobs with greater authority within organizations. This exclusion from authority is estimated to account for approximately one-third of the Black–White income gap in the sample. Robinson and Kelley (1979) also find a positive effect of job authority on income in a comparative sample of American and British men.

Men are more likely than women to be in positions that hire and fire, determine pay, and supervise others (Wolf & Fligstein, 1979). Some of this sex gap in authority is explained by women's lower qualifications and their attitudes and behaviors. But the most important determinants seem to be the behaviors and policies of employers. For each additional increment in occupational status, the increases in job-based authority are two to three times larger for men than for women. Also for both males and females, being in a "female-labeled" job greatly reduces an individual's access to positions of authority.

Spaeth (1985) suggests an approach to work stratification based on control over organizational resources. Greater control over two kinds of resources, economic power (monetary allocation) and authority (number of subordinates) is associated with higher earnings for individuals. In the sample Spaeth analyzes, men have significantly higher control over both kinds of resources. Related studies (Ferber, Green, & Spaeth, 1986; Ferber & Spaeth, 1984) show that control over monetary resources explains a substantial amount of the earnings gap between men and women, even after controlling for the effects of human capital, institutional factors, and other measures of work authority.

The way in which jobs are arranged inside organizations also affects patterns and rates of mobility. Job titles within firms are often extremely segregated by sex (Bielby & Baron, 1986). Gender is often used as the criterion in assigning job

titles, and men's and women's work is often done in separate organizational settings. About 80% of the firms in Bielby and Baron's (1986) sample have more than 90% of jobs held exclusively by either men or women. Men tend to occupy more specialized jobs in large, unionized organizations. A related study (Baron, Davis-Black, & Bielby, 1986) shows that job clusters are formed along occupational, skill, and gender lines. In addition, analysis of promotion ladders reveals that 80% of promotion ladders are segregated by sex. All-male jobs in unionized settings exhibit the greatest mobility. Hypotheses formulated at the job level receive stronger support than those at the establishment level, suggesting that internal labor markets may exist only within specific parts of an organization.

Work is more fragmented in large, bureaucratic organizations that rely on firm-specific skills, that have professionalized workforces and that are located in institutional sectors (Baron & Bielby, 1986). Fragmentation of jobs is important because it provides greater opportunity for internal promotion. Gender seems to play a prominent role in this fragmentation: An increase in the percentage of male workers leads to greater job title proliferation, and presumably greater promotion chances for men.

Another factor affecting mobility is the degree to which job skills are specialized to the needs of a single firm. Williamson (1975) analyzes the effects of firm-specific skills on the internalization of the employment relation. He argues that firm-specific skills are negatively related to interorganizational mobility because firms internalize the employment relation when skill specificity is high. Wholey (1985) finds support for this hypothesis in this study of entry into law firms: Firms with greater differentiation, indicating greater reliance upon firm-specific skills, show lower rates of external recruitment.

Research in the organizational structure tradition sometimes examines the effects of the structure of the entire organization on mobility. For example, Talbert and Bose's (1977) study of wage attainment for retail sales clerks compares the effect of employment by different kinds of stores. Retail sales clerks employed in specialty stores or in high-status departments earn higher wages. Also wages are higher for those with greater job discretion, typically workers with special job titles who are subject to less supervision.

Another organization-level variable that may decrease overall turnover rates is unionization. By Freeman and Medoff's (1979) argument, unionization raises average wage levels, increases employees' sense of collective voice, and lowers the variance in wages. Higher wages and greater sense of collective voice lead to diminished turnover rates. Lower wage variance leads to higher turnover of high achievement and high ascription workers (e.g., White men).

Organizational technology also influences rates of hiring, promotion, and turnover. Thompson (1967) suggests that firms with long-linked technologies demonstrate primarily internal lateral mobility, while firms with mediating or

intensive technologies exhibit upward internal mobility and greater inter-organizational mobility.

Adoption of new technology has two main effects on careers within an organization (Osterman, 1985). First, new technology changes the overall level and distribution of skills required, and affects the quality of jobs within the firm. Second, the number of jobs changes when new technology is introduced. Employment may decrease because machines directly replace manual labor. On the other hand, employment may rise because new jobs are created to manage or augment the new technology. Lynch and Osterman (1989) study the impact of the adoption of new technology in one of the Bell operating companies. They find that the demand for professional and technical employees rose while demand for clerical employees fell. Additionally, the divisional distribution of work was changed. Employment rose in the firm's central office and fell in its decentralized suboffices.

Many organizational characteristics have been linked theoretically to the development of internal labor markets. For example, older organizations are hypothesized to have better-developed internal labor markets (Baron & Bielby, 1980). This implies that rates of movement into and out of older organizations are lower and rates of internal mobility are higher than those for newer organizations. Because they can offer career paths validated by past experience, older firms have more stable workforces and most accession and attrition occur at the bottom of the hierarchy. Newer firms, lacking such paths, show hires and turnover at all levels in the hierarchy.

Larger organizations, like older organizations, tend to have better-developed internal labor markets. Career opportunities and internal mobility rates within large firms are therefore high and turnover rates are low. Neo-Marxists (e.g., Edwards, 1979) explain this relationship as the consequence of large firm vulnerability to worker unrest. Larger firms offer higher wages (Gerlach & Schmidt, 1989; Stolzenberg, 1978) and these attenuate worker unrest and also turnover.

Firm size also acts as a moderating variable, sometimes attenuating and sometimes amplifying the effects of other determinants of mobility. For example, research has found that organizational size eliminates the effects of industry sector, suggesting that sectoral definitions are only crude approximations of the diversity of constituent organizations (Baron & Bielby, 1984; Bruederl, 1987). On the other hand, Stolzenberg's (1978) analysis of the wage and status attainment process reveals that the effects of workers' schooling on earnings and socioeconomic status increases roughly as a logarithmic function of the size of the employing establishment.

In sum, as a result of these studies we know a great deal about the demographic and organizational factors which impel and impede mobility within and across organizations. Some of these, such as the design of promotion ladders, are

debatably internal decisions of organizations. Others, such as growth and decline, are often prompted by environmental forces. In all cases, however, the prior and continued existence of the organization itself is assumed. The underlying theoretical imagery is one of adaptation.

B. MACROSOCIOLOGICAL MODELS OF MOBILITY

A variety of other macrosociological factors have been associated with career mobility. Arguments of this kind usually do not deny the importance of organizational characteristics but posit additional structural constraints on mobility. Commonly these arguments are intended to apply to entire organizations and are based on their location in the economy or their time of appearance in history. Other models of this type apply to only certain types of positions within organizations. Because they override the effects of any organizational features, macrosociological models tend to deemphasize the role of formal organizations in shaping careers, despite a possible awareness that the processes analyzed are enacted in organizations. Empirical research conducted from this perspective often uses data from samples of individuals. These data are becoming increasingly longitudinal and are likely to cover entire career histories retrospectively. We review briefly the following macrosociological traditions: research on the effects of industrial structure (concentrating on dual labor market theory); historical research on the evolution of patterns of mobility; and research on the effects of social class.

The most influential view of the effect of economic location on careers is proposed by dual labor market theory (Averitt, 1968; Doeringer & Piore, 1971; Kerr, 1954; Lutz, 1981; Sengenberger, 1975; Tolbert, Horan, & Beck, 1980). Dual labor market theorists argue that modern economies can be divided into a primary (or core) sector and a secondary (or peripheral) sector. These sectors differ substantially in mobility opportunities and turnover behavior. Jobs in the primary sector have higher chances for promotion within organizations and lower rates of interorganizational movement. In essence, the primary sector is characterized by well-developed internal labor markets with meritocratic administrative selection and promotion rules. In contrast, firms operating in the periphery possess more rudimentary internal labor markets, so individuals working there are subject to market pressures. Jobs in this sector are unstable and turnover is high. Workers are prevented from leaving the secondary market and entering the primary market by institutional constraints. Empirical evidence offers mixed support of these propositions (see Baron & Bielby, 1984; Beck, Horan, & Tolbert, 1978; Berg, 1971; Blossfeld & Mayer, 1988; Dickens & Lang, 1985; Fligstein, Hodson, & Kaufman, 1981; Hodson, 1984; Jacobs, 1983).

Other theorists argue that there are not just two labor market segments, but many (e.g., Cairnes, 1874; Kerr, 1954; Oster, 1979; Stinchcombe, 1979). Labor

markets can be segmented along a variety of dimensions, including geography, occupational group, industry concentration, economic scale, degree of state regulation, capital intensity, and average firm size (Kalleberg, Wallace, & Althauser, 1981). Furthermore, core and peripheral distinctions can be drawn within any particular firm or occupational labor market (Smith, 1983).

Career mobility rates have apparently fluctuated over history. For example, Jacoby (1985) notes that:

> . . . instability was a characteristic feature of the traditional system of factory employment. Labor turnover rates were continuously high throughout the late nineteenth and early twentieth centuries, and it was not uncommon for firms to have annual turnover rates in excess of 300%. (pp. 115–116)

Between the first and second World Wars, members of the new professions of personnel administration and industrial engineering began to formalize the employment relation. Industrial engineers, following the principles laid down by Frederick Taylor (1911), evolved systems of technical control. They segmented manual and clerical work, conducted job analyses based on time-and-motion studies, codified skill requirements and established formal training programs. Personnel administrators, for their part, developed bureaucratic control systems which consisted of formal recruitment and training procedures, centralized control over hiring, promotion and firing, and job ladders or career paths (Baron, Dobbin, & Jennings, 1986).

As a consequence of these changes in the nature of employment relations, rates of interorganizational movement declined. Jacoby (1985) states:

> The drop in mobility was one of the most important consequences of the employment system that had become widespread for manufacturing workers. Seniority rules and internal promotion policies gave workers a reason to remain with their employers. Grievance systems and nonunion complaint procedures provided an alternative to quitting and reduced the probability of being fired. Of course, a heavier use of layoffs counterbalanced the decline in dismissals, but because of rehiring commitments and because seniority was retained over long periods, workers on layoff were less likely to change jobs. (p. 276)

These changes eventually led to the phenomenon of the "organization man" (Whyte, 1956), workers who anticipated long-term relationships with their employers.

Other ancillary causes accelerated the overall decline in mobility rates during the first half of this century (Jacoby, 1984; 1985). Restrictive immigration laws were passed, making re-entry by emigrants more difficult. Immigrant workers stayed put and established stable communities. Fewer new immigrants arrived, implying fewer persons with no strong ties to any place. This also reduced the general tendency to move geographically and across employing organizations. The demographic composition of the American workforce gradually shifted, as

second-generation Americans grew up and entered the workforce. These workers were less geographically mobile than their parents, and lived in stable working-class communities.

Blossfeld (1986, 1987) has investigated related issues for the German historical context (see also Mayer, 1977, 1979a; Mueller, 1977, 1986). In one study, he shows that the demographic profile of an age cohort at time of labor market entry has long-lasting effects on careers (Blossfeld, 1986). This is especially consequential for the generation which followed World War II and experienced tremendous opportunity (Mayer, 1979b). In another study, Blossfeld shows a secular effect of German modernization on career chances (Blossfeld, 1987).

In a well-known thesis about the historical evolution of mobility patterns, Stinchcombe (1965) argues that the rise of new forms of economic organization influences the structure of labor markets, and thereby affects career opportunities and rates of mobility. In discussing the evolution of labor markets in Britain and the United States from the feudal system to the 20th century, he notes that the distribution of forms of employment has shifted over time: from feudalism with its kinship ties in the Medieval period, to the free labor markets of early cities, to the bureaucratic labor markets in the 19th century and finally, to middle-class "craft" labor markets in the 20th century. As each new form of employment developed, earlier forms did not die out but rather persisted. No trend toward universalistic determinants of socioeconomic mobility is thus implied in Stinchcombe's model; indeed, increasingly diverse patterns of mobility are predicted as history unfolds and as the distribution of organizational arrangements becomes more varied.

Examination of the modern American economic system supports this prediction (Stinchcombe, 1965). In the agricultural, retail and service sectors, family ownership dominates and employment often coincides with kinship. Rates of mobility of all kinds are low in these sectors. For middle-class employees of large bureaucratic organizations, there is generally low mobility across organizations or across occupations; the greatest part of career mobility for this sector is within a single firm. For craft workers and unionized workers in small firms, there is a great deal of mobility across organizations, but little across occupations. For manual labor in large firms and for all employees in small firms, there is much movement across organizations, industries and occupations; in essence, a "free" labor market operates.

Using different, often political arguments, social class theorists have investigated the impact of class origin on income (Mayer, 1977; Robinson & Kelley, 1979; Wright, 1978; Wright & Perrone, 1977). There are also numerous studies of the relationship between class and intergenerational mobility (for reviews, see Breiger, 1981; Featherman, 1981; Hout, 1983; Matras, 1980; Mayer, 1980; Mayer & Mueller, 1972). Studies of the effect of class on career mobility are, however, less common (but see Goldthorpe, 1980; Haller & Hodge, 1981; Snipp,

1985). A major exception is the work of Carroll and Mayer who have studied the interaction of class, industry sector and organizational characteristics (Carroll & Mayer, 1986; Mayer & Carroll, 1987). They find that classes differ in their mobility patterns, with members of classes possessing low organizational authority (white- and blue-collar employees) being the most mobile, and members of classes with the most organizational authority (owners, professionals and managers) being the most stable. Furthermore, class demonstrates stronger effects on job mobility across firms than within firms.

C. SUMMARY

Our review makes clear that a wide variety of factors are thought to be associated with mobility within and across organizations. In keeping with recent intellectual trends, we have concentrated on structuralist factors and the theories underlying them. Many of these arguments presume an existing formal organization as the theoretical focal point and subscribe to an adaptation model of organizational change. Other macrosociological arguments take a more sweeping view that pays less attention to organizational factors. Virtually none of this work takes seriously the idea that organizational populations change over time as a result of differential selection and replacement of firms as well as of adaptation by firms to their changing environmental conditions (see Baron, 1984, for a partial exception). There is, for instance, little consideration given in the structuralist literature to the mobility consequences of organizational founding and mortality. Because a single event of this kind can generate massive job turnover, ecological phenomena at least deserve consideration. To what extent do they account for job change patterns by creating and eliminating jobs?

III. Organizational Dynamics and Careers

A. THE EFFECTS OF ORGANIZATIONAL DYNAMICS ON JOB-SHIFTS

We now explore the mobility implications of organizational foundings and dissolutions, organizational expansion and contraction, merger activity, reorganization, and organizational domain shifts. Direct data on these processes are often difficult to obtain and as a consequence, many of the numbers we review are net figures derived from observed changes in firm size over time. These figures thus may be conservative estimates of *ecological* mobility—they ignore job shifts due to changes in the job profiles of organizations whose size does not change. On the other hand, such figures may overestimate the effects of organizational dynamics on *individual* mobility because they record jobs created

and eliminated as separate events, whereas an individual may move directly out of an eliminated job and into a newly created job. We will keep this consideration in mind when comparing job change data and individual mobility data.

Long-Term Economic Trends. In a comparative study of Providence, Rhode Island, and Buffalo, New York, between 1960 and 1970, Jacobson (1984) attempts to determine the effects of long-term economic trends on mobility. He classifies industries into comparable growing and declining groups based on their average employment change during the decade. Attrition is equated with the turnover rate from the growing industries (it therefore includes both voluntary mobility and some short-term structural turnover due to growth). Displacement is calculated as the difference between the attrition rates from declining industries and growing industries within a comparable group. Jacobson's displacement, then, may be interpreted as turnover due to long-term structural change. Across all industries in the two cities, attrition averages 13% per year while long-term displacement averages 2.6%. Long-term industry economic trends thus account for a much smaller proportion of job mobility than do the ongoing short-term fluctuations.

Investigating similar issues, Leonard (1987) uses the Wisconsin Unemployment Compensation Contribution Reports, which cover all firms in the state except government agencies and nonprofit organizations. He finds that between 1977 and 1982 frictional changes in employment (defined as fluctuations in establishment size uncorrelated with industry or with geographic region) are much larger than structural changes (meaning fluctuations in industry or area employment averages). Industry and county factors explain little variance in firm growth or contraction rates, and within-industry variance is much larger than variance in employment across industries. These findings are consistent with Jacobson's conclusion, namely that fluctuations in ongoing turnover are of far greater magnitude than long-term turnover trends. The question remains as to how much of the ongoing turnover is caused by organizational dynamics?

Organizational Foundings and Dissolutions. Four empirical studies assess the effects of organizational foundings and failures on rates of job creation and elimination in the U.S. Birch (1981) looks at the entire U.S. from 1974 to 1976. He finds that, in total, 12.4% of the country's jobs are created or eliminated within this period by the ecological processes of organizational birth and death. New organizational foundings increase the job pool by 6.7%, while failures eliminate 5.7% of all jobs.

The second study, conducted by the Brookings Institution (Small Business Administration, 1983), covers the period 1978 to 1980. It estimates that 7.0% of all jobs are created or eliminated by organizational foundings or dissolutions

during the study period. Foundings add 7.4 million jobs to the pool, while failures eliminate 6.4 million positions.

A study conducted by MIT (see Small Business Administration, 1983), covering the same time period but employing slightly different assumptions, estimates the total rate of job creation and elimination to be 5.1%. 6.2 million jobs are estimated as created by organizational foundings, while organizational dissolutions remove 3.7 million jobs.

In his study of Wisconsin from 1977 to 1982, Leonard (1987) estimates that 3.6% of all jobs are accounted for annually by establishment founding and mortality. Leonard's sample underrepresents one-person establishments, implying that this estimate may be biased downward because small firms tend to have higher founding and failure rates. For example, Dun and Bradstreet (1988) estimates that firms with two or fewer employees account for 57% of all business starts in 1986 and 1987.

Organizational Expansion and Contraction. The four studies discussed above also assess the effects of firm growth and decline. Estimates of the effects of firm growth and decline are typically somewhat smaller than the effects of organizational founding and failure. Birch (1981) estimates that 7.8% of all jobs were created or eliminated from 1974 to 1976 as firms grew and shrank. The Brookings study finds that 8.7% of all jobs were created or destroyed by firm expansion or contraction during the 2-year period 1978 to 1980. The MIT study's estimate for the same period is about half of this, 4.2% per annum (Small Business Administration, 1983). Finally, Leonard (1987) estimates that 19.4% of all jobs in the state of Wisconsin were created or destroyed each year in expansions or contractions.

Table I compares the annualized estimates of these different studies of the effects of organizational founding, expansion, contraction and failure on the number of jobs. Given their different time frames and geographical biases, it is unreasonable to expect these numbers to be identical. What all the estimates do show, however, is that all four of the ecological processes under consideration have a substantial and regular impact on jobs and their incumbents.

Merger Activity. *Mergers and Acquisitions* (1987) reports that in 1986, the American economy witnessed 3541 mergers with a total value of $165 billion. In the same year, 1317 divestitures were recorded across all industries, excluding divestitures of foreign units of U.S. firms to foreign companies. In the ten industries which recorded the most divestitures (736 total), the total value of this activity was over $38 billion. What is the impact of mergers and divestitures on job stability?

In a detailed study of this issue, Birch (1987, pp. 48–51) traces the history of

TABLE I
Annual Percentage of Jobs Created and Eliminated by Ecological Dynamics

Cause of Job Changes	*Birch Study (USA, 1974-76)*	*Brookings Study (USA, 1978-80)*	*MIT Study (USA, 1978-80)*	*Leonard Study (Wisc., 1978-79)*
Foundings	3.3%	3.8%	3.2%	2.7%
Failures	2.8%	3.2%	1.9%	0.9%
Expansion	2.2%	5.8%	2.7%	12.1%
Contraction	1.7%	2.9%	1.5%	7.3%
Total for Organizational Foundings and Failures	6.1%	7.0%	5.1%	3.6%
Total for Organizational Expansions and Contractions	3.9%	8.7%	4.2%	19.4%

Notes. Percentages for the Birch study are annualized figures taken from Greene (1983, p. 5), which reports 2-year percentage employment changes from 1974 to 1976.

Percentages for the Brookings and MIT studies are calculated by taking half the estimated numbers of jobs generated and lost by organizational dynamics in the 2-year period 1978 to 1980 (see Small Business Administration, 1983, Table 3.4) and applying it to an estimated civilian employment level of 97.65 million.

Percentages for the Leonard study are calculated by applying the percentages of total job losses and gains accounted for by failures and foundings (11% and 18% respectively; see p. 143 of Leonard's article) to the estimated percentage shares of jobs created and destroyed (from Table 6.5).

6046 firms that underwent merger between 1969 and 1976, and compares them to firms that did not experience merger. He studies changes in employment size of the merged and the independent firms between 1974 and 1976. The results show that firms undergoing a merger experienced greater employment shrinkage than did independent firms during this recessionary period. Merged firms lost 10.5% of their jobs through contraction and 15.9% through dissolution, while for independent firms the loss rates were 8.3% and 7.4%, respectively. Although exact data of this kind are not available for divestitures, they most likely shrink or transfer firm employment as well. This should be especially the case for leveraged buy-outs, which subject firms to greatly increased debt loads.

Reorganization. Corporate reorganization often affects the distribution of jobs within an organization. To the extent that reorganization events are driven by competitive pressures, the resulting redistribution of employment is properly classified as ecological mobility. The phenomena included within this general process are many and varied including plant closings, technological changes, domain shifts and strategic realignments. It is also virtually impossible to find

macro-level data on these processes. However, activity of this kind obviously goes on regularly and with substantial impact on mobility.

B. EFFECTS OF JOB-SHIFTS ON ORGANIZATIONAL POPULATIONS

The causal arrow also runs in other directions at times. That is, job shifts affect the distribution of organizations in a population and how this distribution changes over time. Most frequently this effect occurs through the organizational founding process.

Formal organizations, especially large bureaucratic ones, design and maintain career ladders with employee exit portals. Whether by mandate or by incentive, older and experienced employees are at some point expected to retire and leave the organization. Often this date occurs before the employee intends to terminate his or her working life. Since few attractive conventional employment options exist for workers in this age range, self-employment is often chosen. Self-employment need not involve establishment of a new organization, but it sometimes does (Carroll & Mosakowski, 1987). So the retirement policies of large firms drive some portion of the overall organizational founding process.

Good data on the extent of retirement-induced self-employment are not easy to find. Fuchs (1982) presents what seem to be the most relevant numbers available. His data are taken from the Retirement History Study and report the probability of self-employment by age. Table II shows the pertinent figures.

It is difficult to know how much of the self-employment of older workers shown in Table II involves the founding of new organizations. It is even more difficult to know how much of this self-employment results from mandatory retirement in other organizations. Nonetheless, since self-employment among older workers is substantial, even if only a small fraction involve the establishment of new firms by retired employees, the impact on the organizational population is substantial.

Self-employment seems particularly likely for those who have previously

TABLE II
Probability of Self-employment by Age for American Men

	Age at Beginning of Period (years)							
Period	*58*	*59*	*60*	*61*	*62*	*63*	*64*	*65*
1969-71	.028	.032	.035	.043	.042	.061		
1971-73			.030	.049	.033	.047	.036	.074

Source. Fuchs (1982, p. 342).

been in managerial positions. Indeed, managers are greatly attracted to self-employment whenever they lose their jobs, not just in cases of mandatory retirement. The *Conference Board* 1989 Report claims that 21% of managers discharged from major corporations started their own businesses.

Unemployment in general often drives individuals to consider self-employment. Mayer and Goldstein (1961) report that 21 out of 81 owners of small businesses they studied had opened their firms because they had either lost or were in fear of losing their jobs. Sometimes the movement into self-employment may be because the person has few other options; in other words, the move is out of desperation. This may often be the case with "franchise owners" of direct-selling organizations (Biggart, 1989). However, in other instances unemployment may provide the opportunity for individuals to enact a fantasized "pipe dream" they have been holding much of their lives. Americans, in particular, seem to hold such dreams in abundance, although they are usually never acted upon (Chinoy, 1955).

Given that the foundings, closures, and mergers discussed above often generate unemployment and managerial discharges, the overall process has a certain degree of circularity. Organizational population processes affect job elimination and employee exit; these in turn generate some portion of new organizational foundings. The extent to which the process feeds upon itself is undoubtedly small but nonetheless important.

Other organizational factors generate new firms as well. The most insightful study we know demonstrating this is Brittain and Freeman's (1986) analysis of organizational splintering in the American semiconductor industry. Brittain and Freeman analyze the rate at which existing firms spawned founders of new firms. They find that the rate of spin-offs is higher for firms which recently witnessed a chief executive succession from outside or which were recently taken over by a non-semiconductor manufacturer. Also, firms that follow a generalist strategy or are first movers in at least one of their product groups are more likely to spawn founders of new semiconductor firms. The theoretical importance of their study is that it relates self-employment and entrepreneurship to organizational factors rather than individual or environmental factors.

IV. Importance of Ecological Mobility

We have seen how a number of different organizational processes affect mobility patterns through the creation of new jobs and the elimination of old jobs. These processes include organizational growth and decline; organizational founding, mortality and merger; and organizational restructuring. Among the factors that basic organizational theory suggests are driving these processes are: characteristics of the environment, organizational population dynamics, organi-

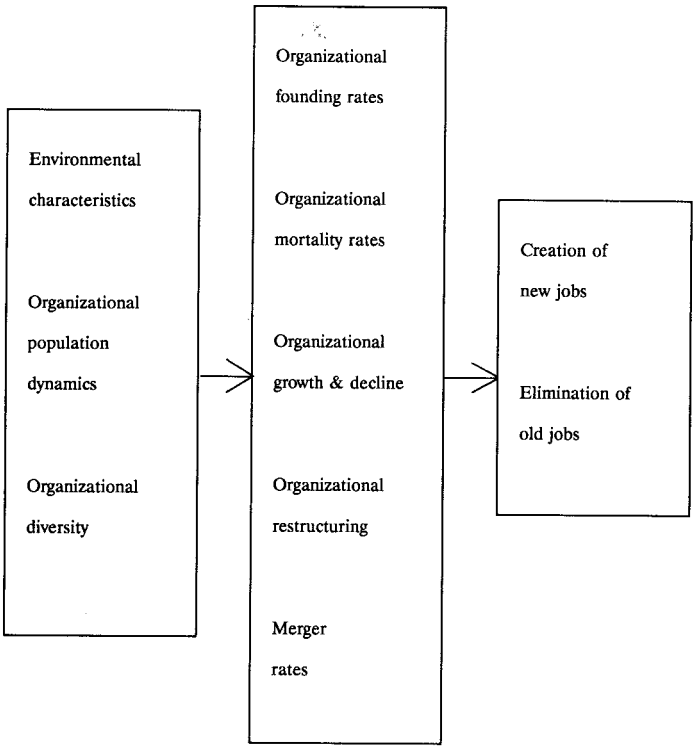

Fig. 1. Ecological dynamics of job life histories.

zational diversity, and industry age. Figure 1 gives a broad conceptual summary. How important are these processes? How much mobility is accounted for by ecological dynamics? These questions are difficult to answer precisely; however, we can make fairly good estimates for the U.S. based on the numbers reviewed earlier and other data.

To assess the importance of ecological mobility, we first need to know the overall amount of individual mobility, and the relative magnitude of its different types. Job shifts by individuals can be categorized along many dimensions: movement within vs. across firms, movement within vs. across occupations, upward vs. downward vs. lateral movement, geographic migration, movement into and out of unemployment, and movement into and out of the labor market (meaning out of and into school, illness, childcare, retirement, etc). The forces driving the job-shift process will vary across categories of change. Let us take the two primary dimensions, movement within vs. across firms and movement within vs. across occupations, and assess the impact of ecological dynamics on them.

Estimates of *individual* rates of job shifts across firms and across occupations are readily available. The most exhaustive longitudinal studies of careers have been conducted by the Center for Human Resource Research at Ohio State University. These studies offer estimates for the probability of changing employers which range from 7% per year for men over 45 years to 23% per year for young men (Kim, Roderick, & Shea, 1973; Kohen & Andrisani, 1974; Parnes, Fleisher, Miljus, Spitz, & Associates, 1970; Parnes, Egge, & Andrisani, 1973; Roderick & Kohen, 1976). Stated differently, depending on age and gender, between 7 and 23% of all persons will shift *employers* in any given year. Hall's (1982) estimates for all American workers show that over 28% have held their current *jobs* one year or less. Allowing for new entrants to the labor market, this estimate implies an overall annual job turnover rate—encompassing both within- and across-firm movement—of about 25%.

Sehgal's (1984) estimates of movement across occupational categories average 9.5% per year. Eck (1989) reports somewhat higher rates, on average 20% per year; movement out of an occupation ranges from 1.2% per year for dentists to 58.5% per year for child-care workers. Rosenfeld (1979) estimates that 90% of workers changing occupation also change firms, suggesting that interoccupational movement makes up a large proportion of interfirm movement. Coupled with Hall's estimate of overall mobility, these studies suggest that 20% per year is a reasonable estimate of individual movement across organizations.

Research on the creation and elimination of *jobs* offers estimates of the effects of organizational dynamics on the population of jobs which range from approximately 10% to 23% per year (see Table I). Comparing individual mobility rates across organizations to these positional rates requires some guesswork. When a new job is created or an old job is eliminated, the action generates at least one individual job change. However, an individual changing jobs might move directly from an eliminated job to a newly created job. This means that in the extreme case, two structural events in the population of jobs correspond to only one individual mobility event. So in comparison to an individual mobility rate, the equivalent structural rate ranges from the observed figure to half its value.

Even using the conservative estimate, that two structural events involving jobs correspond to one individual job-shift, the amount of mobility accounted for by ecological dynamics is staggering. Taking the structural estimates given above and dividing by two implies that between 5 and 11% of job-holders change employers every year because of organizational dynamics.[2]

Now let us take these estimates and attempt to assess the importance of ecological dynamics for individual mobility. We have seen that about 20% of all

[2]Remember also that these figures are based on net changes in the total number of jobs offered by a firm. To the extent that the distribution of jobs within firms shifts independent of changes in firm size, these figures understate the impact of organizational dynamics.

job-holders usually change firms in a given year. We have also seen that every year between 5 and 11% of all job-holders move to a different firm because of an ecologically induced organizational event. This means that the job shifts caused by ecological dynamics constitute between 25% (5/20) and 55% (11/20) of all individual mobility.

Moreover, ecological mobility likely accounts for virtually all downward movement into lower jobs and a large proportion of all movement into managerial positions. Because downward mobility is rare within firms, the 20% of movement across firms must capture virtually all of it. Since individuals are unlikely to change firms for a worse job (except in rare circumstances), the implication is that most movement of this kind must be forced, either by an involuntary discharge or an ecological event. As involuntary terminations become infrequent (Kalleberg & Sorensen, 1979), ecological factors probably dominate.

Similar reasoning applies to managerial positions, where rates of voluntary quitting are low. Positions of authority are also likely to be more sensitive to ecological dynamics in that there are often few similar jobs to move into laterally. This would be especially true in small firms.

Less is known about the magnitude of the effects of mergers on job creation and elimination. One journalist (Magnet, 1984) guesses that up to one-half of the employees in merged firms will either leave or shift jobs within the new firm. Another observer (Kay, 1987) estimates that 10% of the entire U.S. workforce is now employed in companies involved in an acquisition, merger or spinoff. When combined, these numbers imply that 5% of all individuals change jobs in a given year because of mergers and related activity.

Adding the estimated effect of mergers to our previous calculations increases the estimated impact of ecological processes to a level that is difficult to believe. Suppose that mergers and related activity do indeed prompt 5% of all workers to change jobs in a given year. Suppose also that 60% of those changing jobs also change firms. Then, adding this 3% (5% $\times$ 60%) to our previous estimates brings the estimated effect of ecological dynamics up to a range of 8 to 15%. Since only 20% of all workers move in a given year, the upper estimate stretches one's imagination. In any case, however, it is obvious that ecologically induced organizational dynamics account for a large part of individual mobility. Clearly, the phenomena driving these processes need to be added to the structuralist agenda. The occasional consideration that structural researchers currently give organizational ecology bears little correspondence to its apparent importance.

V. Models of Organizational Ecology

It should be obvious that organizational ecology does not have an exclusive claim on many of the processes underlying ecological mobility. For instance,

many organizational theories such as resource dependence theory or transaction cost economics might be invoked to explain processes of growth and decline in firms. Each of the processes that we have described (growth and decline; founding and mortality; merger and acquisition), however, falls squarely within the purview of organizational ecology's primary focus. Because ecological theory and research has progressed significantly in understanding these processes, we attempt in this section to make the connection to mobility research more explicit. Accordingly, we restrict our attention to ecological ideas and research as we review some previous efforts and sketch some new directions we see as promising.

A. STRUCTURAL INERTIA

Hannan and Freeman (1984, 1989) propose that large organizations and old organizations are subject to the greatest structural inertia. As organizations age, they take on greater investments in plant, equipment, and specialized personnel, so that their sunk costs rise over time. The longer the historical memory of an organization, the more solid are vested interests, the smaller its zone of indifference (Simon, 1976) and the more numerous the constraints on action. Older organizations evolve standard operating procedures which work to define accepted channels of information flow. This limits the information received by decision makers. Older organizations are also more tightly enmeshed in social exchange networks, which limits the inflow of ideas. Older firms develop stronger dependencies on and relationships with exchange partners (Aldrich & Auster, 1986; Pfeffer & Salancik, 1978) resulting in increased political constraints on change. In sum, as organizations age they become more rigid.

Similar arguments can be made about the effect of size on structural inertia. Large size means greater leverage in relations with exchange partners. The less an organization depends on its exchange partners, the less it needs to change to fit shifting external demands. Size also varies directly with visibility, implying that large size hinders organizational adaptation. Larger organizations will be less likely to change because greater organizational mass leads to structural ossification (Downs, 1967, p. 60). The larger the organization, in terms of number of subunits and number of employees, the more difficult control and coordination become. Formalization, standardization and differentiation of function all serve to facilitate control. The byproduct of these processes is diminished flexibility, because established control systems must be overruled to shift organizational behavior (Aldrich & Auster, 1986).

This analysis suggests that older and larger organizations will be less likely to change their personnel systems in response to internal or external pressures. Baron, Mittman, and Newman (1988) investigate this proposition in their study of gender integration in the California Civil Service. They find partial support for

the structural inertia model. Smaller government agencies were more likely to desegregate faster. However, both very young and very old agencies made greater progress toward gender integration. The flexibility of young organizations accords with the ecological proposition. The rapid adaptation of older organizations was interpreted as a constant organizational characteristic, one which was responsible for and correlated with organizational longevity.

B. ORGANIZATIONAL DIVERSITY

Ecologists explain organizational diversity in terms of differential founding and mortality rates within organizational populations. Hannan (1988) draws attention to an important implication of such organizational diversity for the study of careers. He argues that, "the diversity of organizational forms in a social system determines the shape of average careers and the inequality of outcomes" (p. 166). More specifically, he proposes that the diversity of careers is directly proportional to the diversity of organizational forms in a social system. A system characterized by low organizational diversity is likely to select and reward individuals on the basis of a relatively narrow set of skills. Consequently, such a system offers a restricted range of career lines. The diversity of career opportunities present in a system has consequences for social inequality in turn. A narrow range of available careers accentuates the effects of initial advantages, thus increasing inequality. On the other hand, greater diversity in careers allows for the utilization of a wider range of individual abilities. Hannan (1988) points out that an unintended consequence of the increasing regulation of employment practices is to reduce the degree of diversity within the system, thereby increasing inequality.

Some types of diversity in an organizational population can be readily measured in terms of its age and size distributions (Hannan, 1988). Organizational size has been shown to have strong and consistent effects on career mobility (Baron & Bielby, 1984; Carroll & Mayer, 1986). The "liability of newness" (Stinchcombe, 1965) that accounts for higher mortality rates among young organizations (Freeman, Carroll, & Hannan, 1983) implies greater employment instability in such organizations. Also cohorts of organizations have imprinted on to their structures features of the social and political environment at the time of founding (Stinchcombe, 1965). Hannan (1988) therefore argues that organizational populations developing over shorter spans of time are characterized by lower levels of diversity.

C. ORGANIZATIONAL DENSITY

One of the more developed models within organizational ecology is Hannan's (1986) density model of legitimation and competition. This model posits that

density (the number of organizations) drives both the legitimation of organizational forms and competition among organizations using a form, although each in different ways. Density increases legitimacy at a decreasing rate but increases competition at an increasing rate. Legitimation increases founding rates and depresses mortality rates. Intensified competition lowers founding rates and raises mortality rates. When coupled, these arguments imply that the legitimation process dominates under low density and the competition process dominates in high density conditions. According to the model, the relationships between density and the rates have specific nonmonotonic forms: founding rates rise and then decline with density; mortality rates drop and then increase with rises in density. Empirical research has provided substantial support for this model in a wide variety of populations (see Carroll & Hannan, 1989; Hannan & Carroll, 1992).

What does this model imply for mobility? The answer can only be speculative because little research has been conducted on this topic. Perhaps the most pertinent study is one done for different purposes, Pfeffer and Leblebici's (1973) study of interfirm executive mobility. These researchers find that density has an inverted U-shaped relationship with executive mobility across organizations. This finding is somewhat surprising since a linear relationship between density and mobility seems more intuitive—high density means many organizations, more employment opportunities and more executive positions. Hannan's theory provides an explanation: The middle range for density is the point at which founding rates are highest and mortality rates are lowest. From the point of view of structural change, this is a more important period than the period of high density where founding rates are lowered. That is, at this point opportunity abounds for those at the tops of organizations because many new high-level positions are being created as organizations are founded.

D. NEW ORGANIZATIONAL FORMS

Industries often witness the emergence of new organizational forms and these can have significant implications for careers and mobility within the industry. Consider, for instance, the American beer brewing industry. For the last 100 years or so this industry has seen tremendous consolidation. The number of breweries has declined from 2474 in 1880 to 45 in 1980. In 1982, the largest four firms held 78% of the market. However, in the last 10 years or so two new organizational forms have emerged and proliferated. The first of these, the so-called microbrewery, produces ale and beer by traditional methods for a small but upscale niche in the market. The second form, commonly referred to as the brewpub, involves the sale of malt beverages directly to the consumer for consumption at the site of production. Brewpub products resemble those of the microbreweries except that they are fresher and are usually not bottled.

Total unemployment in the American brewing industry has changed little as a result of microbreweries and brewpubs. However, the types of employment changes occurring have been very important: Jobs in microbreweries and brewpubs tend to be disproportionately in positions of authority and with the potential for significant market innovation. In 1988, almost 100 of these organizations were operating in the American industry and they produced over 25 new and different styles of malt beverages. The opportunities and the excitement about the products induced many persons to enter the industry who otherwise would not have, and they in turn developed and acquired skills and techniques the industry had been lacking. Regardless of the eventual fate of the two organizational forms, the innovative impact of these individuals on the industry will be long-lasting.

From the perspective of career analysis, the point is that industries where new organizational forms appear are very different from those where only established forms exist. New organizational forms create unique career opportunities, especially in positions of authority, and allow the development and acquisition of new skills and generate considerable innovation. Tracking and measuring such developments would not be an onerous task for researchers, yet it may explain some important mobility behavior.

E. DIVERSIFICATION

Organizational domain shifts due to the diversification of organizational products also affect career patterns. To give one example, the American banking, savings and loan, and securities industries underwent deregulation during the late 1970s and the 1980s. Firms in these formerly distinct industries were allowed to compete directly and to enter each other's domain. Many firms branched out of their traditional core businesses and offered new services and products, which required new areas of activity and expertise. Experienced personnel moved, for example, from commercial banking and securities to savings and loan associations. They brought with them expertise in commercial lending and the operation of secondary financial markets, thus facilitating savings and loan associations' diversification into commercial loans, mortgage-backed securities, and mortgage banking. New domains also influence patterns of mobility within individual firms, as new positions open and new career paths develop.

Organizations increasingly accomplish entry into new domains through merger or acquisition. Merger and acquisition demonstrate strong effects on careers, as discussed before. Substantial downsizing in employment usually accompanies absorption by a dominant partner. Retaining the services of key personnel in the acquired firm is usually crucial to a strategy of growth through acquisition. The drop in status experienced by these very personnel in the aftermath of an acquisi-

tion might, however, encourage some of them to branch out on their own. Widespread defection is more likely to occur if the core business of the dominant partner is very different from that of the acquired firm. The likelihood of formation of such break-away organizations also increases if the acquired firm has been successful in the past, as potential entrepreneurs find it easier to garner the necessary resources under these circumstances.

F. ENVIRONMENTAL VARIABILITY

Another intriguing research possibility involves looking directly at environmental variability and mapping it onto mobility patterns within and across organizations. In one of the more explicitly ecological studies of this kind, Brittain and Wholey (1988) use theories of niche width (Freeman & Hannan, 1983) and resource partitioning (Carroll, 1958) to explain mobility rates within 130 different four-digit SIC industries. Both uncertainty and frequency of change in resource availability lead to greater layoff rates, suggesting that firms manage such environmental variation by staffing adjustments rather than by creating boundary-spanning units or broadening employee skills. Quit rates are higher at both low and high levels of industry concentration, possibly reflecting greater entrepreneurial activity due to demand growth (at the low concentration end) or blocked mobility (at the high concentration end). An analysis of staffing patterns in a sample of restaurants in eighteen California cities produces supporting evidence for the effects of environmental variation on mobility rates (Brittain & Wholey, 1988).

An ecological perspective on careers can also explicitly take into account the political environment of organizations (see Carroll, Delacroix, & Goodstein, 1988). One feature of the political environment that has direct implications for career mobility is state socialism. Nation-states characterized by a large public sector and where unemployment is officially illegal have very different mobility regimes. State-owned firms, even when in decline, are not usually allowed to die, although they can be consolidated. The founding of new organizations is also a comparatively rare event in such economies. Because organizational foundings and dissolutions are infrequent, the primary source of career mobility is through organizational growth and decline or through reorganization. Quite often, such reorganization occurs as a result of changes in the political and administrative leadership.

Political systems also influence job-shift rates directly, especially during periods of crisis. Jacoby (1984) relates how, during World War I, the U.S. federal government fostered norms about "acceptable" turnover rates. During World War II, the government moved to lower turnover and stabilize employment patterns, especially in war-related industries like shipbuilding, lumber and min-

ing (Baron, Dobbin, & Jennings, 1986) Indeed, there were instances of direct government control of labor mobility, when certificates of separation from the previous employer were required of employees taking new jobs.

VI. Discussion

We are painfully aware of our reliance on American data and findings throughout this chapter. For reasons of accessibility and understanding we have built our case for ecological mobility primarily on examples drawn from the American economy. That should not be taken to imply, however, that we think the argument does not apply in other national contexts (see for example, Cramer & Koller, 1988). Indeed, not only do we think that organizational dynamics account for much mobility elsewhere, we also believe that differences in the intensity of such activity might explain the well-known comparative differences in rates of turnover and mobility.

Take West Germany as a case in point. The typical German male worker holds his job for approximately six years (Carroll & Mayer, 1986, p. 325). The estimated probability of changing jobs in any given year is 0.167 (Carroll & Mayer, 1986; see also Cramer, 1987). By contrast, the typical American male worker stays in the job 2.17 years on the average (Carroll & Mayer, 1986, p. 325). The probability of moving to another job in a year is 0.461.

The usual explanations for these differences rely on cultural and institutional factors. By the argument advanced here, organizational dynamics may constitute a critical specific factor of this kind. If so, we would expect rates of organizational founding, mortality, expansion, contraction, merger, and reorganization to be lower in West Germany than in the United States. Although there are proportionately *more* small firms in West Germany (Carroll & Mosakowski, 1987), our impression is that the rates of organizational change through selection are indeed lower. Of course, while such a judgment must ultimately rely on hard comparative data, we suspect that the journalistic accounts from which we formed our opinions are not totally misinformed.

Although we started by focusing on careers within organizations, our review and criticism led us to consider societal differences in entrepreneuralism and business failure. Sociologists have not even begun to study the effects of these phenomena on jobs and careers. Until they do, we believe the structuralist research agenda will remain incomplete. Likewise, both sociological and psychological studies of career pathways and individuals' career development could be enriched by new theoretical models of organizational dynamics, including the ecological one described in this chapter. We have put forward the view that individual career development and change stem as fully from systematic proper-

ties of organizational (ecological) dynamics as they do from the features of individuals' ontogeny. Life-span theories of individual development should begin to embrace elaborated theories about the development of nonperson units such as populations of employing organizations, which are the dynamic contexts within which career mobility unfolds.

Acknowledgments

The research reported here was supported by the Institute of Industrial Relations, University of California at Berkeley. We appreciate the helpful comments of James Baron, Josef Brueder1, Gunnar John and John Torpey on an earlier draft. A German language version of this chapter has appeared in the Koelner Zeitschrift fuer Soziologie und Sozialpsychologie in 1990. We gratefully acknowledge the assistance and advice of David Featherman in preparing the chapter for this volume.

References

Aldrich, H. E., & Auster, E. R. (1986). Even dwarfs started small: Liabilities of age and size and their strategic implications. In B. Staw & L. Cummings (Eds.), *Research in Organizational Behavior, 8,* 165–198.

Aldrich, H. E., & Marsden, P. V. (1988). Environments and organizations. In Neil J. Smelser (Ed.), *Handbook of sociology* (pp. 361–392). Newbury Park, CA: Sage.

Averitt, R. T. (1968). *The dual economy: The dynamics of industry structure.* New York: Norton.

Baron, J. N. (1984). Organizational perspectives on stratification. *Annual Review of Sociology, 10,* 37–69.

Baron, J. N., & Bielby, W. T. (1980). Bringing the firms back in: Stratification, segmentation, and the organization of work. *American Sociological Review, 45,* 737–765.

Baron, J. N., & Bielby, W. T. (1984). The organization of work in a segmented economy. *American Sociological Review, 49,* 454–473.

Baron, J. N., & Bielby, W. T. (1986). The proliferation of job titles in organizations. *Administrative Science Quarterly, 31,* 561–586.

Baron, J. N., Davis-Blake, A., & Bielby, W. T. (1986). The structure of opportunity: How promotion ladders vary within and among organizations. *Administrative Science Quarterly, 31,* 248–273.

Baron, J. N., Dobbin, F., & Devereaux Jennings, P. (1986). War and peace: The evolution of modern personnel administration in U.S. industry. *American Journal of Sociology, 92,* 350–383.

Baron, J. N., Mittman, B. S., & Newman, A. E. (1988). *Targets of opportunity: Organizational and environmental determinants of gender integration within the California civil service, 1979–1985.* Unpublished paper. Graduate School of Business, Stanford University.

Bartholomew, D. J. (1973). *Stochastic models for social processes.* New York: Wiley.

Beck, E. M., Horan, P. M., & Tolbert II, C. M. (1978). Stratification in a dual economy: A sectoral model of earnings determination. *American Sociological Review, 43,* 704–720.

Berg, I. (1971). *Education and jobs.* Boston: Beacon.

Bielby, W. T., & Baron, J. N. (1986). Men and women at work: Sex segregation and statistical discrimination. *American Journal of Sociology, 91,* 759–799.

Biggart, N. (1989). *Charismatic capitalism.* Chicago: University of Chicago Press.

Birch, D. (1981). *Firm behavior as a determinant of economic change.* Cambridge, MA: MIT Program on Neighborhood and Regional Change.

Birch, D. (1987). *Job creation in America*. New York: The Free Press.

Blau, P. M., & Duncan, O. D. (1967). *The American occupational structure*. New York: Wiley.

Blossfeld, H-P. (1986). Career opportunities in the Federal Republic of Germany. *European Sociological Review, 2,* 208–225.

Blossfeld, H-P. (1987). Labor-market entry and the sexual segregation of careers in the Federal Republic of Germany. *American Journal of Sociology, 93,* 89–118.

Blossfeld, H-P., & Mayer, K. U. (1988). Labor market segmentation in the Federal Republic of Germany. *European Sociological Review, 4,* 1–18.

Breiger, R. (1981). The social class structure of occupational mobility. *American Journal of Sociology, 87,* 578–611.

Brittain, J. W., & Freeman, J. (1986, August). *Entrepreneurship in the semiconductor industry*. Paper presented at the 46th Annual Academy of Management Meetings, Chicago.

Brittain, J. W., & Wholey, D. R. (1988). Structure as an environmental property: Industry demographics and labor market practices. In R. Breiger (Ed.), *Social mobility and social structure*. Cambridge, England: Cambridge University Press.

Bruederl, J. (1987). Industries, labor markets, firms and occupational careers: On which level does structure matter? In K. U. Mayer & N. B. Tuma (Eds.), *Applications of event history analysis in life course research* (pp. 140–161). Berlin: MPI.

Bruederl, J., Preisendoerfer, P., & Ziegler, R. (1989a). *Intraorganizational career mobility: The effects of individual characteristics, hierarchy, opportunity structure, growth, and cohort size*. Munich (mimeo).

Bruederl, J., Diekmann, A., & Preisendoerfer, P. (1989b). Verlaufsmuster innerbetrieblicher Aufstiegmobilitaet: Turniermodelle, Pfadabhaengigkeiten und Fruehstarteffekte. In C. Koehler & P. Preisendoerfer (Eds.), *Betrieblicher Arbeitsmarkt im Umbruch* (pp. 117–145). Frankfurt: Campus.

Cairnes, J. E. (1874). *Political economy*. New York: Harper.

Carroll, G. R. (1984). Organizational ecology. *Annual Review of Sociology, 10,* 71–93.

Carroll, G. R. (1985). Concentration and specialization: Dynamics of niche width in populations of organizations. *American Journal of Sociology, 90,* 1262–1283.

Carroll, G. R., Delacroix, J., & Goodstein, J. (1988). The political environments of organizations: An ecological view. In B. Staw & L. Cummings (Eds.), *Research in organizational behavior, 10,* 359–392. Greenwich, CT: JAI Press.

Carroll, G. R., & Hannan, M. T. (1989). Density dependence in the evolution of populations of newspaper organizations. *American Sociological Review, 54,* 524–541.

Carroll, G. R., & Mayer, K. U. (1986). Job-shift patterns in the Federal Republic of Germany: The effects of social class, industrial sector, and organizational size. *American Sociological Review, 51,* 323–341.

Carroll, G. R., & Mosakowski, E. (1987). Career dynamics of self-employment. *Administrative Science Quarterly, 32,* 570–589.

Chinoy, E. (1955). *Automobile workers and the American dream*. Garden City, N.Y.: Doubleday.

Cramer, U. (1987). Zur Stabilitaet von Beschaeftigung. *Mitteilungen aus der Arbeitsmarkt und Berufsforschung, 20,* 243–256.

Cramer, U., & Koller, M. (1988). Gewinne und Verlaste von Arbeitsplaetzen in Betrieben—der Job-Turnover-Ansatz. *Mitteilungen aus der Arbeitsmarkt und Berufsforschung, 21,* 361–377.

Dickens, W., & Lang, K. (1985). A test of dual labor market theory. *American Economic Review, 75,* 792–805.

Diekmann, A., & Preisendoerfer, P. (1988). Turnover and employment stability in a large West German company. *European Sociological Review, 4,* 233–248.

Diekmann, A., Voss, T., & Ziegler, R. (1985). Organisationen und Berufsverlaeufe: Struktur, Dynamik, Wechselwirkungen. *Antrag zur Einrichtung des SFB 333, Teilprojekt B4*. Munich.

DiPrete, T. A. (1987). The professionalization of administration and equal employment opportunity in the U.S. federal government. *American Journal of Sociology, 93,* 119–140.

DiPrete, T. A., & Soule, W. T. (1986). The organization of career lines: Equal opportunity and status advancement in a federal bureaucracy. *American Sociological Review, 51,* 295–309.

Doeringer, P. B., & Piore, M. J. (1971). *Internal labor markets and manpower analysis.* Lexington, MA: Heath.

Downs, A. (1967). *Inside bureaucracy.* Boston: Little, Brown.

Dun and Bradstreet. (1988). *Business starts records.* New York: Dun and Bradstreet Corporation.

Easterlin, R. A. (1961). The American baby boom in historical perspective. *American Economic Review, 51,* 869–911.

Easterlin, R. A. (1968). *Population, labor force, and the long run swings in economic growth: The American experience.* New York: Columbia University Press.

Eck, A. (1989). New occupational separation data improve estimates of job replacement needs. *Monthly Labor Review* (March).

Edwards, R. (1979). *Contested terrain: The transformation of the workplace in the twentieth century.* New York: Basic Books.

Featherman, D. L. (1981). Social stratification and mobility. *American Behavioral Scientist, 24,* 364–385.

Featherman, D. L., & Hauser, R. M. (1978). *Opportunity and change* New York: Academic.

Felmlee, D. H. (1982). Women's job mobility processes. *American Sociological Review, 47,* 142–151.

Ferber, M. A., & Spaeth, J. L. (1984). Work characteristics and the male-female earnings gap. *American Economic Review Proceedings, 74,* 260–264.

Ferber, M. A., Green, C. A., & Spaeth, J. L. (1986). Work power and the earnings of men and women. *American Economic Review Proceedings, 76,* 53–56.

Fligstein, N., Hodson, R., & Kaufman, R. (1981). Defrocking dualism. *Social Science Research, 10,* 1–32.

Freeman, J., & Hannan, M. T. (1983). Niche width and the dynamics of organizational populations. *American Journal of Sociology, 88,* 1116–1145.

Freeman, J., Carroll, G. R., & Hannan, M. T. (1983). The liability of newness: Age dependence in death rates. *American Sociological Review, 48,* 692–710.

Freeman, R., & Medoff, J. (1979). *What do unions do?* New York: Basic Books.

Fuchs, V. (1982). Self-employment and labor force participation of older males. *Journal of Human Resources, 17,* 339–357.

Gerlach, K., & Schmidt, E. M. (1989). Unternehmensgroesse und Entlohnung. *Mitteilungen aus der Arbeitsmarkt und Berufsforschung, 22,* 355–373.

Goldthorpe, J. (1980). *Social mobility and class structure in modern Britain.* Oxford: Clarendon Press.

Grandjean, B. K. (1981). History and career in a bureaucratic labor market. *American Journal of Sociology, 86,* 1057–1092.

Greene, R. (1983). Tracking job growth in private industry. *Monthly Labor Review,* (September), 3–9.

Halaby, C. N. (1982). Job-shift differences between men and women in the workplace. *Social Science Research, 11,* 1–29.

Hall, R. E. (1982). The importance of lifetime jobs in the U.S. economy. *American Economic Review, 72,* 716–724.

Haller, M., & Hodge, R. (1981). Classes and status as dimensions of career mobility. *Zeitschrift fuer Soziologie, 10,* 133–150.

Hannan, M. T. (1986). Competitive and institutional processes in organizational ecology (*Tech. Rep.* 86–13). Department of Sociology. Cornell University.

Hannan, M. T. (1988). Social change, organizational diversity, and individual careers. In M. White Riley (Ed.), *Social change and the life course, Vol. 1* (pp. 161–174) Newbury Park, CA: Sage.

Hannan, M. T. & Carroll, G. R. (1992). *Dynamics of organizational populations: Density, legitimation and competition*. New York: Oxford University Press.

Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review, 49,* 149–164.

Hannan, M. T., & Freeman, J. (1989). *Organizational ecology*. Cambridge, MA: Harvard University Press.

Hodson, R. (1984). Companies, industries and the measurement of economic segregation. *American Sociological Review, 49,* 335–348.

Hodson, R., & Kaufman, R. (1982). Economic dualism. *American Sociological Review, 47,* 727–739.

Holland, J. L. (1973). *Making vocational choices: A theory of careers* Englewood-Cliffs, NJ: Prentice-Hall

Hout, M. (1983). *Mobility tables*. Beverly Hills: Sage.

Jacobs, J. (1983). Industrial sector and career mobility reconsidered. *American Sociological Review, 48,* 415–421.

Jacobson, L. (1984). A tale of employment decline in two cities: How bad was the worst of times? *Industrial and Labor Relations Review, 37,* 557–569.

Jacoby, S. M. (1984). The development of internal labor markets in American manufacturing. In P. Osterman (Ed.) *Internal labor markets*. Cambridge, MA: MIT Press.

Jacoby, S. M. (1985). *Employing bureaucracy*. New York: Columbia University Press.

Kalleberg, A. L., & Sorenson, A. (1979). The sociology of labor markets. *Annual Review of Sociology, 5,* 351–379.

Kalleberg, A. L., Wallace, M., & Althauser, R. P. (1981). Economic segmentation, worker power and income inequality. *American Journal of Sociology, 87,* 651–683.

Kay, E. (1987, September). *The impact of mergers, acquisitions and downsizing*. Speech presented at the New England Society of Applied Psychologists, Chestnut Hill, MA.

Kerr, C. (1954). The Balkanization of labor markets. In E. Bakke et al. (Eds.), *Labor mobility and economic opportunity*. New York: Wiley.

Keyfitz, N. (1973). Individual mobility in a stationary population. *Population Studies, 27,* 335–352.

Keyfitz, N. (1980). *The demography of organizations*. Paper presented at the Population Association of America Meetings, Denver, CO.

Kim, S., Roderick, R. D., & Shea, J. R. (1973). *Dual careers: A longitudinal study of labor market experience of women, Vol. 2*. U.S. Manpower Administration. Washington, D.C., U.S. Government Printing Office.

Kluegel, J. R. (1978). The causes and costs of racial exclusion from job authority. *American Sociological Review, 43,* 285–301.

Kohen, A. I., & Andrisani, P. J. (1974). *Career thresholds: A longitudinal study of the educational and labor market experience of male youth, Vol. 4*. U.S. Manpower Administration. Washington D.C.: U.S. Government Printing Office.

Leonard, J. (1987). In the wrong place at the wrong time. In K. Lang & J. Leonard (Eds.), *Unemployment and the structure of labor markets*. New York: Basil Blackwell.

Lutz, B. (1981). Education and employment: Contrasting evidence from France and Federal Republic of Germany. *European Journal of Education, 16,* 73–86.

Lynch, L. M., & Osterman, P. (1989). Technological innovation and employment in telecommunications. *Industrial Relations, 28,* 188–205.

Magnet, M. (1984). Help! My company has just been taken over. *Fortune,* (9, July), 44–49.

Matras, J. (1980). Comparative social mobility. *Annual Review of Sociology, 6,* 401–431.

Mayer, K. U. (1977). Ungleiche Chancen und Klassenbildung. *Soziale Welt, 28,* 466–493.

Mayer, K. U. (1979a). Lebensverlaufe und Wohlfahrtsenwicklung. In *Antrag auf Einrichtung undFinanzierung des Sonderforschungsbereich 3 "Mikroanalytische Grundlagen der Gesellschaftspolitik.* Frankfurt a.M. und Mannheim.

Mayer, K. U. (1979b). Strukturwandel im Beschaeftigungssystem und berufliche Mobilitaet zwischen Generationen. *Zeitschrift fuer Bevoelkerungswissenschaft, 3,* 267–298.

Mayer, K. U. (1980). Berufsstrukturund Mobilitaetsprozess. Probleme des internationalen Vergleichs objektiver Indikatoren zwischen England/Wales und der Bundesrepublik Deutschland. In H. J. Nowotny (Ed.), *Soziale Indikatoren im internationalen Vergleich* (pp. 97–134). Frankfurt/ New York: Campus.

Mayer, K. U., & Carroll, G. R. (1987). Jobs and classes: Structural constraints on career mobility. *European Sociological Review, 3,* 14–37.

Mayer, K. B., & Goldstein, S. (1961). *The first two years: Problems of small firm growth and survival.* Washington D.C.: Small Business Administration.

Mayer, K. U., & Mueller, W. (1972). Die Analyse von Mobilitaetstrends. *Koelner Zeitschrift fuer Soziologie und Sozialpsychologie, 24,* 132–139.

McCain, B. R., O'Reilly, C. A., & Pfeffer, J. (1983). The effects of departmental demography on turnover: The case of a university. *Academy of Management Review, 26,* 626–641.

Mergers and Acquisitions. May/June (1987). (pp. 59–61; 64–65).

Mueller, W. (1977). Klassenlagen und soziale Lagen in der Bundesrepublik. In J. Handl, K. U. Mayer, & W. Muller (Eds.), *Klassenlagen und Sozialstruktur* (pp. 21–100). Frankfurt/New York: Campus.

Mueller, W. (1986). Soziale Mobiltaet: Die Bundesrepublik im internationalen Vergleich. In M. Kaase, (Ed.) *Politische Wissenschaft und politische Ordnung* (pp. 339–354). Opladen: Westdeutscher Verlag.

Oster, G. (1979). A factor analytic test of the theory of the dual economy. *Review of Economics and Statistics, 61,* 33–39.

Osterman, P. (1984). *Internal labor markets.* Cambridge, MA: MIT Press.

Osterman, P. (1985). Technology and white-collar employment: A research strategy. In the *Proceedings of the 38th Annual Meeting of the Industrial Relations Research Association.*

Parnes, H. S., Fleisher, B. M., Miljus, R. C., Spitz, R. S., & Associates. (1970). *The pre-retirement years: A longitudinal study of the labor market experience of men, Vol. 1.* U.S. Manpower Administration. Washington, D.C., U.S. Government Printing Office.

Parnes, H. S., Egge, K., & Andrisani, P. J. (1973). *The pre-retirement years: A longitudinal study of the labor market experience of men, Vol. 3.* U.S. Manpower Administration. Washington, D.C., U.S. Government Printing Office.

Petersen, T., & Spilerman, S. (1989). Job quits from an internal labor market. In K. Mayer & N. Tuma (Eds.), *Applications of event-history analysis in life course research.* Madison: University of Wisconsin Press.

Pfeffer, J., & Leblebici, H. (1973). Executive recruitment and the development of interfirm organizations. *Administrative Science Quarterly, 18,* 449–461.

Pfeffer, J., & Moore, W. L. (1980). Average tenure of academic department heads: The effects of paradigm, size, and departmental demography. *Administrative Science Quarterly, 25,* 387–406.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations.* New York: Harper and Row.

Preisendoerfer, P. (1987). Organisationale Determinanten beruflicher Karriermuster. *Soziale Welt, 38,* 211–226.

Preisendoerfer, P., & Burgess, Y. (1988). Organizational dynamics and career patterns. *European Sociological Review, 4,* 33–45.

Robinson, R. V., & Kelley, J. (1979). Class as conceived by Marx and Dahrendorf: Effects on income inequality and politics in the United States and Great Britain. *American Sociological Review, 44,* 38–58.

Roderick, R. D., & Kohen, A. I. (1976). *Years for decision: A longitudinal study of the educational and labor market experience of young women, Vol. 3.* U.S. Employment and Training Administration. Washington, D.C., U.S. Government Printing Office.

Rosenbaum, J. E. (1979). Tournament mobility: Career patterns in a corporation. *Administrative Science Quarterly, 24,* 220–241.

Rosenbaum, J. E. (1984). *Career mobility in a corporate hierarchy.* New York: Academic.

Rosenfeld, C. (1979). Occupational mobility during 1977. *Monthly Labor Review* (Oct.), *102,* 44–48.

Ryder, N. B. (1965). The cohort as a concept in the study of social change. *American Sociological Review, 30,* 843–861.

Sehgal, E. (1984). Occupational mobility and job tenure in 1983. *Monthly Labor Review* (Oct.), 18–23.

Sengenberger, W. (1975). *Arbeitmarktstruktur - Ansaetze zu einem Modell des segmentieren Arbeitsmarkts.* Frankfurt am Main, Muenchen, Aspekte Verlag.

Simon, H. A. (1976). *Administrative Behavior* (3rd. Ed.), New York: Free Press.

Skvoretz, J. (1984). Career mobility as a poisson process. *Social Science Research, 13,* 198–220.

Small Business Administration. (1983). *The state of small business.* Washington, D.C., U.S. Government Printing Office.

Smith, D. R. (1983). Mobility in professional occupational-internal labor markets: Stratification, segmentation and vacancy chains. *American Sociological Review, 48,* 289–305.

Snipp, M. (1985). Occupational mobility and social class. *American Sociological Review, 50,* 475–493.

Sobel, M. E. (1983). Structural mobility, circulation mobility and the analysis of occupational mobility: A conceptual mismatch. *American Sociological Review, 48,* 721–727.

Sorensen, A. (1975). The structure of intragenerational mobility. *American Sociological Review, 40,* 456–471.

Sorensen, A. (1983). Process of allocation to open and closed positions in social structure. *Zeitschrift fuer Soziologie, 12,* 203–224.

Sorensen, A., & Tuma, N. B. (1981). Labor market structures and job mobility. *Research in Social Stratification and Mobility, 1,* 67–94.

Spaeth, J. L. (1985). Job power and earnings. *American Sociological Review, 50,* 603–617.

Spilerman, S. (1977). Careers, labor market structure and socioeconomic achievement. *American Journal of Sociology, 83,* 551–593.

Stewman, S. (1988). Organizational demography. *Annual Review of Sociology, 14,* 173–202.

Stewman, S., & Konda, S. (1983). Careers and organizational labor markets: Demographic models of organizational behavior. *American Journal of Sociology, 88,* 637–685.

Stinchcombe, A. L. (1965). Social structure and organizations. In J. March (Ed.), *Handbook of organizations* (pp. 153–193). Chicago: Rand-McNally.

Stinchcombe, A. (1979). Social mobility and the industrial labor process. *Acta Sociologica, 22,* 217–245.

Stolzenberg, R. M. (1978). Bringing the boss back in: Employer size, employee schooling, and socioeconomic achievement. *American Sociological Review, 43,* 813–828.

Super, D. E. (1957). *Psychology and careers.* New York: Harper and Row.

Talbert, J., & Bose, C. E. (1977). Wage attainment process: The retail clerk case. *American Journal of Sociology, 83,* 403–424.

Taylor, F. W. (1911). *The principles of scientific management.* New York: Harper.

Thompson, J. D. (1967). *Organizations in action.* New York: McGraw-Hill.

Tolbert, C. M., Horan, P. M., & Beck, E. M. (1980). The structure of economic segmentation: A dual economy approach. *American Journal of Sociology, 85,* 1095–1116.

Tuma, N. B. (1976). Rewards, resources, and the rate of social mobility: A non-stationary multivariate stochastic model. *American Sociological Review, 41,* 338–360.

Turner, R. (1960). Modes of social ascent through education: Sponsored and contest mobility. *American Sociological Review, 25,* 855–867.

Wagner, W. G., Pfeffer, J., & O'Reilly, C. A. (1984). Organizational demography and turnover in top-management groups. *Administrative Science Quarterly, 29,* 74–92.

Weber, M. (1968). *Economy and society.* Berkeley: University of California Press.

Williamson, O. E. (1975). *Markets and hierarchies: Analysis and antitrust implications.* New York: The Free Press.

White, H. A. (1970). *Chains of opportunity: System models of mobility in organizations.* Cambridge, MA: Harvard University Press.

Whyte, W. H. (1956). *The organization man.* New York: Simon and Schuster.

Wholey, D. (1985). Determinants of firm internal labor markets in large law firms. *Administrative Science Quarterly, 30,* 318–335.

Wolf, W. C., & Fligstein, N. D. (1979). Sex and authority in the workplace: The causes of sexual inequality. *American Sociological Review, 44,* 232–252.

Wright, E. O. (1978). Race, class, and income inequality. *American Journal of Sociology, 83,* 1368–1397.

Wright, E. O., & Perrone, L. (1977). Marxist class categories and income inequality. *American Sociological Review, 42,* 32–55.

Young, A., & Vassilou, P. C. G. (1974). A non-linear model on the promotion of staff. *Journal of the Royal Statistical Society, A137,* 584–595.