ANNUAL REVIEWS

Annual Review of Sociology

Occupations, Organizations, and Intragenerational Career Mobility

Arne L. Kalleberg and Ted Mouw

Department of Sociology, University of North Carolina, Chapel Hill, North Carolina 27599-3210, USA; email: arnekal@email.unc.edu, tedmouw@email.unc.edu

Annu. Rev. Sociol. 2018. 44:283–303

First published as a Review in Advance on May 16, 2018

The *Annual Review of Sociology* is online at soc.annualreviews.org

https://doi.org/10.1146/annurev-soc-073117-041249

Keywords

intragenerational mobility, careers, occupational mobility, organizational mobility, wage or earnings mobility

Abstract

Intragenerational mobility—persistent or secular upward or downward changes in individuals' economic positions or occupational standing over their working lives—is intimately related both to intergenerational mobility and inequality as well as to labor market theories and behaviors. Careers are job sequences or patterns of mobility/immobility within and between occupations and organizations, the two major work structures that shape the opportunities available in the labor market. This article reviews research that links occupations and organizations to careers and intragenerational mobility. We emphasize the multidisciplinary nature of contributions to this topic and focus on integrating research by sociologists and economists. We also highlight cross-national research and emphasize the literatures that address questions related to social stratification and labor markets. Finally, we suggest fruitful areas for future research.

INTRODUCTION

A long-standing emphasis in sociology is describing and explaining how people are allocated to positions in the system of social stratification. Most of the attention on this topic has been paid to intergenerational mobility, which has been used to compare societies with regard to their equality of opportunity and rigidity or openness of class boundaries (Breen & Jonsson 2005). Less studied is the subject of intragenerational mobility, yet this is intimately related to both intergenerational mobility and inequality (Jarvis & Song 2017). The study of intragenerational mobility is also very relevant to research on labor market behaviors such as mobility of people among firms and occupations.

We define intragenerational mobility as persistent or secular changes in individuals' economic positions or occupational standing over their working lives. Mobility so defined implies upward or downward movement, or "time trajectories in earnings, occupational positions, or socioeconomic status" (Sørensen 2001, p. 295). By specifying persistent changes, we distinguish intragenerational mobility from temporary changes in earnings or occupational position. Major sources of inequality in time trajectories in job rewards are peoples' job sequences or patterns of mobility/immobility among jobs. Job sequences form the bases of careers, and how these affect upward or downward mobility for different groups of people in the labor force is the central issue in studies of intragenerational mobility.

Our review focuses on job sequences as defined by occupations and organizations. Occupations and organizations are the two major work structures that shape the opportunities available on the labor market. Stratification researchers have traditionally emphasized occupations as structural sources of careers and inequality. But they also have long recognized that organizations are additionally central to explanations of careers and inequality, a view that coincides with studies of careers and mobility within (and between) organizations by a generation of management scholars and institutional economists. We adopt a cross-national perspective and concentrate on studies since the early 1990s of how changing organizational and occupational contexts affect economic and noneconomic job rewards, focusing on the literature since the last *Annual Review of Sociology* article about intragenerational job mobility (Rosenfeld 1992). The literatures span multiple disciplines and subfields, notably social stratification, the sociology of occupations and organizations, industrial sociology, labor economics, and vocational or career psychology. To make this review manageable, we focus on the literatures in sociology and economics that address questions related to social stratification and labor markets.

INTRAGENERATIONAL EARNINGS MOBILITY: LEVELS AND TRENDS

Intragenerational mobility, like intergenerational mobility, can be depicted by a two-way contingency table where the rows and columns represent individuals' positions at two different points in time. For economic mobility, the rows and columns could be divided into quintiles or deciles of wages or earnings, while for occupational mobility, occupations can be classified into class- or prestige-based categories.[1] Measures of intragenerational mobility can also be constructed by linking inequality and mobility: Shorrocks's (1978) measure of relative income mobility, for example, is based on the impact that income changes have on decreasing long-run inequality compared with average levels of inequality in the cross section. Burkhauser & Couch (2009) and Jäntti & Jenkins (2013) provide recent overviews of the methodological issues surrounding calculating measures

[1]We elaborate on levels and trends in earnings mobility in this section, as earnings or wages are the basic dependent variables in research on intragenerational mobility. In addition to serving as labor market outcomes in their own right, they are usually central to assessments of whether occupational mobility is upward or downward.

of intragenerational mobility as well as of the recent literature on levels, trends, and international comparisons in mobility rates.

Kopczuk et al. (2010) provide up-to-date evidence on trends in intragenerational mobility in the United States using a 1% sample of earnings data from the Social Security Administration to look at intragenerational mobility from 1937 to 2004. In order to differentiate long-term mobility from short-term earnings instability, they first calculate average earnings for individual workers across 11-year periods (by averaging earnings for individuals from $t - 5$ to $t + 5$, where t is the midpoint of the period). Then, they estimate the rank correlation across periods, where the midpoints of the periods are separated by 10, 15, and 20 years for workers who are employed in both time periods. For 11-year earnings periods separated by 20 years, they find that the trend in rank correlation is fairly steady around 0.45 for men, but it decreases for women (indicating an increase in intragenerational mobility). Looking at both men and women together, there is a slight increase in mobility, despite overall cross-sectional levels of earnings inequality having increased over this time period.

Hungerford (2011) looks at earnings mobility in the 1980s and 1990s using data from the Panel Study of Income Dynamics (PSID), measuring mobility as changing income deciles over two ten-year periods (1980–1989 and 1990–1999). He finds that although the percentage of individuals who changed income deciles declined slightly over the time period, other measures of income mobility, such as Shorrocks's (1978) measure, showed an increase in mobility. Because Hungerford uses single years of income data to calculate income ranks at each point in time, his mobility measures combine long-term and transitory earnings mobility and, as a result, could reflect greater turbulence during the 1980s. As an example of recent comparative evidence, Bayaz-Ozturk et al. (2014) find that the rate of intragenerational mobility is higher in Germany than the United States from 1984–2006, though the rate of mobility has declined in the western states of Germany since the reunification of East and West Germany while the mobility rate has been stable in the United States over this time period. Additional recent studies that estimate trends in mobility rates in the United States over time include Bönke et al. (2014), Carr & Wiemers (2016), Larrimore et al. (2015), Levine (2012), and Mullins et al. (2016).

THEORIES OF INTRAGENERATIONAL MOBILITY

Theories of intragenerational mobility generally assume that movement among jobs and changes in earnings and other job rewards are due to the interplay between two broad sets of factors. First, mobility differs by characteristics of individuals, such as their human and social capital, as well as preferences and experiences differing by gender, race/ethnicity, immigration status, and age, among other things. Second, mobility is patterned by institutional and structural influences, such as the distribution and size of occupations, industries, and firms, which are reflections of technological changes, labor demand, and forces that affect job ladders, such as collective worker power (exercised through unions or occupational associations), employer power, and state interventions (such as antidiscrimination laws) that shape the nature of employment systems at particular points in time. Two-sided logit models (Logan 1996) are useful for simultaneously examining individuals' attributes in determining occupational opportunities and job characteristics in shaping workers' occupational choices.

A key difference between sociological and economic models of the labor market is that economists primarily refer to skills—and resulting wage differences based on those skills—as the result of individual differences and choices, while sociologists generally view labor market differences such as wages or status as being attached to positions in the social structure (le Grand & Tahlin 2002).

Individual Explanations of Intragenerational Mobility

Theories differ in the relative weight they place on individual as opposed to institutional explanations of intragenerational mobility. One group of theories emphasizes individuals' resources and characteristics. The status attainment tradition in sociology stressed the role of education in obtaining one's first job and how these affect subsequent attainment. This approach was largely descriptive, and the linkages between concepts (e.g., education and occupation) are consistent with various theoretical explanations (such as credentialism or skills). Economists filled this gap with theories such as Mincer's basic human capital model (e.g., Mincer & Polachek 1974), which argued that individuals' resources (such as education, experience, and other dimensions of human capital) led to their having greater skills and marginal productivity, resulting in wage attainment and mobility.

Two different mechanisms—one based on sorting, and the other based on skill development—provide a useful way to think about how the productivity-related characteristics of individuals are translated into changes in job rewards over time (Jovanovic & Nyarko 1996). One perspective takes a static view of individual variation in skills and ability and explains mobility based on the sorting of persons with particular intrinsic skills or characteristics. Here, upward mobility occurs as the result of a sorting process that gradually identifies and promotes workers with higher levels of intrinsic productivity. A second perspective takes a more dynamic view of skill development, arguing that intragenerational mobility reflects changes in individuals' human capital characteristics over time. For example, Gathmann & Schönberg (2010) argue that workers become more productive by accumulating occupationally related skills that may be transferrable to similar occupations, thereby facilitating both intragenerational wage and occupational mobility.

Additional theories of intragenerational mobility point to individual factors that are not directly related to productivity (e.g., demographic characteristics such as gender, race, and age). A variety of explanatory mechanisms have been advanced to account for why these factors should produce differences in intragenerational mobility, such as discrimination, information availability, and availability of economic and social resources such as social or cultural capital.

Structural Explanations of Intragenerational Mobility

A second group of theories emphasizes the importance of structural features of labor markets for job and wage mobility. Johnson (2007), for example, shows that prospects for earnings growth differ among jobs that have different skill requirements, regardless of the characteristics of workers in those jobs. A key feature of these theories is the concept of internal labor markets (ILMs); these are clusters of jobs characterized by upward movement that is associated with a progressive development of skill or knowledge (Althauser & Kalleberg 1981, p. 130). ILMs are the structures wherein orderly job sequences unfold and upward intragenerational mobility occurs.

ILMs are found in occupations as well as organizations. Some occupations are able to establish mechanisms of social closure (Weeden 2002, Redbird 2017) that reduce competition from those outside the occupation. Organizational ILMs result from employers creating job ladders in order to facilitate skill acquisition and task-specific human capital (Gibbons & Waldman 2004) or to control the workforce (e.g., Edwards 1979).

Interplay Between Individual and Structural Factors

Other theories focus more directly on the interplay between individual and institutional factors in explaining intragenerational mobility. Sørensen's (1974) mathematical model conceptualized the dynamic interplay between labor market structures (which affect opportunities for moving to better jobs) and individuals' resources (such as education or experience) to explain how job shifts

affect wage and occupational status trajectories. Building on a long tradition of mobility research, he argued that mobility is due to the expansion and contraction of the supply of vacant jobs relative to the demand for these jobs by individuals. Persons who have more resources and thus greater control over the decision to leave a job would be more likely to experience gains in wages or status than persons in situations where the employer had greater control over this decision. Sørensen's dynamic mathematical modeling approach inspired studies using event-history models to examine how job shifts affected intragenerational mobility for different groups of people in different countries (e.g., Shin 2007; see Rosenfeld 1992 for a summary of this literature).

Ishida et al. (2002) identify diverse forms of the interplay between structural and individual factors: seniority-based progression where progression is determined by length of service; late selection where differentiation occurs later in the career; a tournament model whereby winners are promoted early and losers have little chance of further promotion; a sponsored model in which early selection creates cumulative advantages; a gatekeeping model that filters out the least competent employees; and a contest model where the selection of elites is delayed, thus allowing everyone to participate in competition, even those who were marginal early. Using personnel records from a Japanese and a US company, they find that the most common promotion pattern is a two-step selection process: gatekeeping that filters out the least competent and then contests or competition among the rest.

Careers

The career is a prominent concept in all these theoretical explanations of intragenerational mobility. We can define careers broadly as the sequences of jobs held by persons over their working lives. Careers differ in the amount of mobility or the number of changes in occupations and organizations. These job shifts vary in their direction, whether they are upward or downward in terms of earnings, status, and noneconomic job rewards. They also differ in their orderliness, or the degree to which jobs in a sequence are linked by characteristics such as skills (Wilensky 1961).

There are at least three distinct conceptions of careers. One is that careers consist of anything related to work that a person does over their working life. This view makes no assumptions about the amount, direction, or orderliness of intragenerational mobility and is thus not very useful for explaining it.

A second idea of careers is the attachment to an organization or occupation. Here, lengths of attachment to organizations or occupations are used as the dependent variables. People who change organizations are thus seen (at least implicitly) as changing careers.

A third perspective sees careers as job sequences or patterns of movement within and between organizations and occupations. Careers are viewed as mobility with a particular employer or shifts between employers that result in upward or downward movement, sometimes within an occupation, sometimes not. Some occupations are linked in sequences that permit people to acquire skills that may be specific to these contexts. Organizational, occupational, and economic sociologists, as well as labor economists, tend to adopt this view and assess the impacts of movement within as opposed to between employers or occupations as sources of upward trajectories in earnings.

ORGANIZATIONS AND INTRAGENERATIONAL CAREER MOBILITY

Careers as Long-Term Attachment to an Organization

Job stability, most commonly measured by employer tenure, or the length of time a person has worked for a particular employer (Neumark 2000), is the main way that long-term attachment to the employer has been studied.

Diebold et al. (1997), using data from the Current Population Survey (CPS), find that employer tenure was fairly stable over the 1980s and early 1990s (see also Jaeger & Stevens 1999, Polsky 1999) and the exchange between Diebold et al. (1996) and Swinnerton & Wial (1996) seems to support the view that there was not a decrease in job stability during the period 1979–1991. Gottschalk & Moffitt's (1999) analyses of the Survey of Income and Program Participation (SIPP) and PSID also find no increase in job turnover (i.e., yearly exit rates) during the 1980s and 1990s. Similarly, Auer & Cazes (2003), in a study of the United States, the European Union, and Japan, find that there was a relatively high level of stability in employer tenure in these countries.

Other studies found a decline in job stability in this period. Bernhardt et al. (2001; see also Bernhardt et al. 1999) find a marked increase in job instability among two cohorts of young white men from the National Longitudinal Surveys of Youth (NLSY) during the 1980s and early 1990s as compared with workers of the same age in the late 1960s and 1970s; they attribute some of this increase in instability mainly to growth of low-end, high-turnover industries such as retail trade and business services. Their differences from Gottschalk & Moffitt's (1999) study may be due in part to different assumptions about measuring year-to-year job changes. Boisjoly et al. (1998) find that the rate of job changing increased since the 1980s (see also Marcotte 1995). Auer (2005) finds that the average employer tenure in the United States declined over the 1990s and was less in the United States than in the other countries studied. Bidwell (2013) argues that declines in tenure and long-term employment (in the CPS, for males) reflect declining union strength to obtain closed employment relations that protect them from labor market competition.

Japan has long been viewed as an exemplary case of organizational career stability, whereby (male) workers (employed by large firms) have long employer tenures. Yu's (2010) event-history analysis found that while Japanese firms generally retained many features of the permanent employment system after the economic crisis in the early 1990s, voluntary turnover increased as the norm, stressing that men's loyalty to their employers weakened. Cheng & Kalleberg's (1997) analysis of three national surveys found that macrostructural factors and postwar economic developments produced differences in permanent employment practices for young male workers: White-collar workers in large firms had the lowest between-employer mobility, and blue-collar, small-firm workers had the highest; this order was reversed among older workers.

The apparent constancy in job stability found in some studies masks divergent trends for different subgroups of the population defined by gender, education, age, and race. Hollister (2011) concludes that men experienced a decline in their median number of years with employers from the 1980s to 2000s, while job tenure has steadily increased for women. Hollister & Smith (2014) find that married women were behind the rise in women's job tenure, as the tenures of both men and nonmarried women have declined. Farber (1998a,b) shows that less-educated men were less likely to hold long-tenured jobs than previously and that there was a substantial increase in the proportion of women who held long-term jobs.

Job tenure rates also differ among age groups (see Fligstein & Shin 2004). Job instability increased in the 1990s for white males with long job tenure, blacks, and young adults. There were substantial declines in job tenure for men in the prime working years (35–64), but not for women. The decline in employer tenure is especially pronounced among older white men, the group that had been most protected by ILMs in the past (Cappelli 2008, Farber 2008, Munnell & Sass 2008).

Tenure is generally related to promotions and wage increases, though this relationship is complex. For example, Cobb-Clark & Dunlop (1999) show in their analysis of the National Longitudinal Survey of Youth 1979 (NLSY79) that promotion rates first increase and then decrease with employer tenure. Economists disagree, however, about whether the economic returns to employer tenure reflect the acquisition of employer specific-skills or the quality of the match between persons and jobs (i.e., as those with poor matches will leave). French et al. (2006) argue

that wage changes for those who are continuously employed are returns to experience, while wage changes for those who switch jobs are due to both experience and changes in the quality of the job match. Schmelzer & Ramos (2016) show that search and matching models are most appropriate in liberal market economies such as Ireland and the United Kingdom, human capital models are more suitable in countries with higher employment protections (Germany and Austria), and the insider-outsider labor market segmentation in Southern European countries hampers the explanatory power of both sets of theories.

Despite the prominence of studies of job stability and employer tenure, they do not tell us all that much about intragenerational mobility and careers. For this, we turn to studies that focus directly on movements within and between organizations.

Careers as Sequences of Intraorganization Versus Interorganization Mobility

Individuals can advance their careers by moving up in an organization or by moving from one employer to another. Upward movement within organizations constitutes a key indicator of the successful operation of firm ILMs and is more prevalent in large firms (e.g., DiPrete 1993). Between-organization moves represent either sorting mechanisms or skill transfers between organizations. Such moves are more common early in the career as workers seek to obtain good matches that lead toward more stable employment relations as their careers mature (Topel & Ward 1992).

In the increasingly dynamic labor markets of the post-Fordist era, employers rely more on the external labor market and so are less likely to provide training and be committed to their employees. Employers increasingly hire workers from outside the organization rather than develop their employees' human capital internally. The proportion of managers hired from the external market has increased dramatically since the 1950s (Cappelli 2008), though this varies by organization size: Bidwell (2013) shows that there has been an increase in external hiring of experienced men (between the ages of 30 and 65) since the late 1970s that is almost entirely restricted to large (more than 1,000 employees) firms, especially since the mid-1990s; by contrast, there was little change in the proportion of workers hired by medium-sized firms and a decline in the propensity of the smallest firms to hire externally. Lazear & Oyer (2004) find that there is substantial external hiring by firms at every job and occupation level, though internal hiring is greater at the higher levels, while Cappelli et al. (2014) find that leaders in the top ten managerial positions at each of the *Fortune* 100 companies in 2001 were less likely to have started their careers with their current employer compared with 1980. Technology companies have struck back against the growing prominence of employer mobility through noncompete agreements (Marx 2011).

The decline of firm ILMs also suggests that individuals' wage growth comes mainly from across-employer movement. Bidwell (2011) shows that workers in a US financial services company who are promoted internally have better performance on the new job for the first two years and lower exit rates than external hires, but the latter are initially paid more and have greater experience and education. The relationship between job and wage mobility also depends on whether or not changing employers is voluntary, as Perticara (2004) demonstrates by an analysis of NLSY data, finding that voluntary mobility increases wages while layoffs produce wage losses. Leung (2014, p. 145) uses data from an online crowd-sourced labor market for freelancing services (Elance.com) and found that employers prefer candidates who have some "erraticism" and who move incrementally between similar jobs over those who do not move or those whose job histories are highly erratic.

Frederiksen et al. (2016) show that hierarchical advancement within Danish firms interacted with cross-firm mobility to shape earnings growth: Short-term earnings growth of those who changed employers at the nonexecutive level (90% of the sample) was sizeable and comparable to obtaining internal promotion to an executive-level job, though this short-term gain was modest

compared with earnings growth associated with promotions (either within or between firms) and subsequent mobility at a higher executive level. Fuller (2008) finds that during the first twelve years in the labor market, persons who worked for more employers had lower average wage trajectories, though moderate levels of employer change can lead to better wage outcomes than stability early in the career (depending on type, timing, and relative level of changes). Women are disadvantaged, since workers who are less attached to the labor force and women who are married or have children have less favorable wage outcomes due to mobility. Dwyer (2004), using PSID data, shows that some people who shift employers voluntarily trade downward earnings mobility for nonpecuniary benefits they value more than money (such as reduced hours, greater autonomy via self-employment, or better geographic location). Bidwell & Briscoe (2010) find that college-educated information technology (IT) employees build their careers along interorganizational career ladders, working for organizations that provide more training early in their careers, then moving to organizations that have higher demands for their skills later.

Choi (2016) analyzes work-history data from the Korean Labor and Income Panel Study and finds that the rate of job transitions increased significantly during and after the economic crisis of the late 1990s and that these more frequent job movements ameliorated rather than increased inequality in occupational status. Mouw & Kalleberg (2010) find that the majority of the increase in men's wage inequality in the United States from 1977 to 2005 was due to differences in rates of wage growth among workers during spells of continuous employment for the same employer, rather than wage changes due to job displacement or voluntary employer mobility (see also Gottschalk 2001).

Studies showing greater interorganizational mobility spawned the notion of boundaryless careers that are no longer confined within organizations (Arthur & Rousseau 1996). But boundaryless does not mean patternless: Employer changes might also reflect movement within occupational ILMs (e.g., Tolbert 1996). Hence, the boundaries of careers should be taken as objects of study (Inkson et al. 2012).

OCCUPATIONS AND INTRAGENERATIONAL CAREER MOBILITY

Workers' occupational histories have been used to describe the structure of careers over time (Abbott 2003) and as a measure of intragenerational mobility in social position or social class (e.g., Blau & Duncan 1967, Parkin 1971). Of course, the level of occupational mobility or stability over the life course depends on occupational classification schemes, which differ in their correspondence to the actual division of labor and in their level of aggregation (Katz 1972, Connelly et al. 2016), and so the measurement of occupational mobility is inherently fuzzier than firm or employer mobility. Moreover, models using occupational earnings or prestige as the dependent variable may miss the complexity of mobility patterns among jobs within occupations that might be a key part of career dynamics (Abbott 2003).

Sociological attempts to measure the pattern of occupational mobility extend at least back to Form & Miller (1949), who contended that after an initial exploratory period, many workers settle into stable occupational careers. Neal (1999) uses a sorting model to arrive at the same conclusion, arguing that workers switch occupations early in their career until they find one that is matched well to their inherent skills and characteristics, at which point subsequent job mobility is more likely to be within-occupational mobility across firms.

Trends in Occupational Mobility

Occupational mobility rates can be considered basic indicators of intragenerational mobility, if occupations are taken as measures of social position or class. Jarvis & Song (2017) analyze time trends

in occupational mobility using repeated cross sections of one-year mobility data from the CPS. Their log-linear approach allows them to identify changes in circulation mobility by controlling for structural effects due to variation in the size of different occupations, and they find that there has been an increase in intragenerational occupational mobility over time. Kambourov & Manovskii (2008) arrive at similar findings using longitudinal data from the PSID. Other studies of trends in occupational mobility include Moscarini & Thomsson (2007), Gabriel (2003), Shniper (2005), Longhi & Brynin (2010), and Parrado et al. (2007). Nonetheless, trends in one-year mobility rates could reflect employment instability rather than more permanent levels of mobility; this would be the occupational equivalent to the differentiation between earnings instability and changes in permanent income. Moreover, without some reference to a vertical dimension of mobility, it is difficult to assess the findings in terms of upward or downward mobility for individual workers.

Longitudinal Studies of Occupational Careers

Data on workers' occupational histories can get at the vertical dimension of occupational mobility by using occupation-based characteristics such as status, average income, or social class as the dependent variable. A useful analytic technique here is the growth curve model, which permits analysis of complete career lines. This overcomes a limitation of event-history models, which, by looking at separate transitions, often lose sight of the complete career line (Rosenfeld 1992, p. 57). Miech et al. (2003) estimate growth curve models of average occupational earnings and find that race/ethnic and gender disparities in occupational inequality remain constant over the life course. Similarly, Schulz & Maas (2012) study occupational career progression using growth curve models with historical data from the Netherlands and find no evidence of an effect of work experience on occupational prestige. This suggests a divergence from the well-established effects of work experience on wages and points us in the direction of occupation-specific human capital models of wage growth (see below). Härkönen et al. (2016) find that gender differences in occupational status narrow over the life course in Sweden, but not in Germany. Manzoni et al. (2014) also estimate growth curve models of occupational careers in Germany with occupational prestige as the key dependent variable (see Titma & Roots 2006).

Longitudinal data can also be used to estimate class-based models of intragenerational mobility by combining detailed occupations into larger aggregate classes. Kim (2013) uses a log-linear approach to analyze occupational mobility nested within occupation-based social classes, providing evidence of a process of deoccupationalization where clerical and manual occupations show declining levels of occupational stability in contrast to white collar workers. Li (2002), Scherer (2005), and Parrado (2005) estimate individual level models of mobility between occupation-based social classes. Scherer (2005) finds that occupational and class mobility is greater in Great Britain than in Germany; one explanation for this is that a more stable process of transition from school to work characterizes Germany. Parrado (2005) uses retrospective data on occupational histories to analyze intragenerational class mobility for three cohorts of Mexican workers, arguing that upward mobility was higher during the period of import substitution compared with the neoliberal period after the early 1980s. The class-based approach provides more flexibility in assessing variation in rates of intragenerational mobility at different points in the occupational structure, although the resulting models are more complex and have more parameters to interpret.

Occupational Mobility and Wage Changes

Occupations are used as an explanatory variable in longitudinal studies of the effects of occupational mobility on wages. Here, though, the interpretation of wage changes associated with occupational

mobility is complicated by the possibility of selection effects: If workers change occupations voluntarily, then it would be natural to expect this to be associated with career advancement and increased wages; if mobility is involuntary, then this might entail the loss of specific skills associated with the occupation (see the discussion of occupation tenure effects below). With this in mind, Longhi & Brynin (2010), Parrado et al. (2007), and Carroll & Powell (2002) all estimate the immediate effect of occupational mobility on wages. Parrado et al. (2007), for instance, find that occupational mobility is associated with wage declines for men, but mixed effects for women, using data from the PSID from 1969 to 1993.

By contrast to studies of the short-term effect of occupational mobility on wages, le Grand & Tahlin (2002) estimate the impact of job and occupational mobility on workers' average rate of wage growth over a ten-year period. They reason that not all of the benefits of labor market mobility are immediately apparent (workers may, for instance, move to occupations where they expect higher rates of wage growth) and the effects of mobility may be cumulative. Overall, they find that an increase in average occupational wages of 1% is associated with a 0.5% increase in individual wages.

Structural Models of Occupational Mobility

Changes in the occupational distribution affect the rate, and consequences, of occupational mobility. There are also key differences across countries in the organization of occupational labor markets, with countries that have a more extensive set of occupation-specific credentials, such as Germany and Austria, exhibiting stronger attachment to occupationally defined careers than countries such as the United States and the United Kingdom (Haller et al. 1985, Kerckhoff 1995), a difference that some authors have described as a general difference between collectivist and individualist mobility regimes (Murphy 2014). Becker & Blossfeld (2017) use retrospective career histories of German workers and show that structural change in labor markets increases the rate of both upward and downward occupational mobility, owing to differences in workers' ability to take advantage of emerging opportunities. Gangl (2004) finds that the rate of reemployment outside of displaced workers' original broad occupational categories is significantly lower in Germany than in the United States, but that the effect varies by occupation-level institutional factors such as the rate of union coverage and the prevalence of fixed-term contracts.

Some studies examine the impact of structural changes at the occupational or industrial level on upward or downward occupational mobility. McBrier & Wilson (2004) find that industry-level employment growth reduced the rate of downward mobility in the PSID but not the gap between black and white workers. Murphy (2014) finds that workers in the United Kingdom, Germany, and Sweden in declining clerical and managerial occupations are more likely to move to higher wage-growing occupations compared with production workers. Similarly, Holmes & Tholen (2013) observe age and cohort differences in workers' ability to move out of declining occupations in Great Britain. Wilson et al. (2013) analyze racial differences in the effect of structural reforms in the public sector that decreased workers' employment security.

Upward & Wright (2007) estimate a model of the effects of industry-level skill upgrading on the rate of upward and downward occupational mobility, using longitudinal data from the United States and the United Kingdom. They classify occupations into four basic skill levels and use these skill-level classifications to measure skill upgrading at the industry level based on changes in the occupation distribution within industries. Their findings suggest that much of the increase in skill levels within industries appears to be absorbed by the occupational upgrading for workers within their current firms rather than technological displacement and subsequent replacement by new workers.

The Task-Specific Human Capital Approach

The skills required for success in a particular occupation often necessitate an investment in occupationally specific training and experience. Shaw (1987) develops a model of occupation-specific skills, which are not perfectly transferrable across occupations. This extends the basic human capital model, except that occupational skills are viewed as heterogeneous, rather than general effects of education or experience that are broadly applicable in the labor market. She estimates a measure of skill transferability between occupations based on occupational mobility data from the 1970 Census, arguing that mobility will be higher between occupations with higher levels of skill transferability. For related work on both the theory of occupation-specific skills and the use of mobility data to measure the skill-relatedness of occupations, readers are referred to Sicherman & Galor (1990).

Kambourov & Manovskii (2009) use the PSID and find that a period of five years of occupational experience (measured at the three-digit Census occupational classification) is associated with a wage increase of approximately 20%; in models where they control for occupational experience, they find the effect is much larger than the effect of either industry experience or firm tenure. These results underscore the increasing importance of occupational-labor markets compared with firm ILMs in terms of intragenerational mobility (e.g., Tolbert 1996). Sullivan (2010) estimates similar models of the returns to occupational experience using data from the NLSY.

Gibbons & Waldman (2004) propose the related idea of task-specific human capital, whereby individuals accumulate skills that are specific to their task and are neither distinctive to the firm nor generalizable to all jobs. This suggests that one way to expand the occupation-specific analysis of Kambourov & Manovskii (2009) is to measure the accumulation of occupational experience across different occupations based on the transferability of individuals' task-related skills. Gathman & Schönberg (2010) use data on occupational skill requirements to estimate the transferability of skills across occupations. Similar to Shaw (1987), they show that individuals are more likely to move to occupations where their skills are likely to transfer and that the skill-distance of the move declines as labor market experience increases. They also find that workers' accumulated experience in previous occupations transfers to their current occupation, controlling for overall labor market experience, experience in the current occupation, and firm tenure. Relatedly, Geel & Backes-Gellner (2009) model occupational mobility within and across skill clusters formed by using data on dimensions of occupational skills. Additional evidence in favor of a task-based approach to human capital comes from Poletaev & Robinson (2008), who use data on the wage losses of displaced workers, arguing that the magnitude of the wage loss depends on the transferability of skills between jobs.

Careers as Sequences of Occupations

The task-specific human capital literature discussed above is related to earlier research in sociology on career lines (Spilerman 1977, Spenner et al. 1982), which used a synthetic cohort approach with mobility data between detailed occupational classifications to identify patterns and sequences of occupational mobility. From this perspective, career lines are structural features of the labor market, and the movement of workers along these paths represents the interplay between structural and individual characteristics. The advantage of the career-line approach is that it conceptualizes careers as sequences of jobs and occupations, rather than losing the details of the data by converting them into a continuous measure of occupational prestige or aggregating it into larger class-based categories.

Sacchi et al. (2016) study what they call occupational mobility chains representing clusters of occupations that are permeable to upward and lateral mobility, finding evidence of mobility within these clusters as well as barriers to mobility across them. Similarly, Alon & Tienda (2000) analyze women's occupational histories using the NLSY79 and attempt to determine whether the

age-specific patterns of occupational mobility are best described as representing career lines or a more random process of mobility through the highly gender-segregated occupational structure. This paper illustrates the benefits of using contemporary longitudinal data sets, but also the challenges of making sense of complicated individual level variation in careers and occupational mobility (also see Hultin 2003). In an innovative attempt to extract the structural features implicit in longitudinal mobility data, McDonald & Benton (2017) use social network analysis to model the career histories of over 7,000 workers at a grocery store chain.

Sequence analysis of careers. As a way of overcoming the challenge of complexity in making sense of workers' career histories, sequence analysis attempts to identify patterns (Abbott 1995, Abbott & Tsay 2000) and is billed as social science analogue to the way biologists measure similarity between strands of DNA. The most widely used method for detecting patterns in career histories using sequence analysis is optimal matching analysis (OMA), which calculates measures of the similarity between pairs of individual work histories based on scoring the number of substitutions, insertions, and deletions that are necessary to transform one sequence into the other. When there are multiple states, such as specific occupations or occupational clusters, types of firms, or labor market statuses, the score associated with movement between states is based on a matrix of substitution costs between each state. After calculating the similarity between all pairs of career histories, clustering techniques are then used to classify the careers into mutually exclusive clusters that minimize the level of variation within (and maximize the variation between) the clusters.

Sequence analysis offers a potential solution to the vexing problem of what to do with the incredible complexity of actual career data, particularly if detailed occupational codes are used. In a critique, Wu (2000) notes that sequence analysis is essentially descriptive and argues that, among other things, the matrix of substitution costs between states is arbitrary and the potential consequential aspects of temporal ordering are ignored by assuming symmetry in the substitution costs (i.e., the difference between "AB" and "BA" may not be the same if they are events such as divorce or upward versus downward mobility). More recently, Hollister (2009) evaluates the sensitivity of OMA results to small differences in the substitution and insertion/deletion costs. She argues that researchers who use OMA should evaluate the net benefit of the method by testing for effects of the resulting clusters above and beyond the additive effects of the independent variables that were used to create the clusters. Aisenbrey & Fasang (2010) provide a more positive assessment, arguing that many of the issues raised by Wu and Hollister are being addressed by current developments in the literature (also see Dlouhy & Biemann 2015 for another recent review).

Several studies illustrate the usefulness of sequence analysis for research on intragenerational mobility. Blair-Loy (1999) studies the career patterns of 56 female executives in finance and finds that the impact of structural changes (restructuring, industry competition, and employer bankruptcy) opened up opportunities for some of the women. Dufur (2000) uses OMA to study the career histories of college basketball coaches. Sequence analysis works well in these papers owing to the researcher's theoretical and substantive understanding of the cases; the patterns that are found in the analysis are dependent on the appropriate coding of the specific states and positions that configure the structure of particular labor markets.

More recently, Aisenbrey & Fasang (2017) use longitudinal data from the United States and Germany to study the links among fertility, marital patterns, and career trajectories. Unlike the studies of occupational labor markets in Blair-Loy (1999) and Dufur (2000), Ainsebrey & Fasang use a highly aggregated seven-category variable for occupations based on prestige, which abstracts away from the actual mechanisms of mobility of specific labor markets. The resulting career clusters are based on a pairing of the family- and work-based sequences; for example, the only career outcome that the authors label as upward mobility is paired with the family cluster labeled

single/childless. Clustering of the sequences in this way brings us back to a key objection to sequence analysis raised by Wu (2000): We may be more interested in the conditional probability of specific outcomes (such as upward mobility) based on individual characteristics (i.e., family and fertility factors) than in uncovering the most frequently occurring combinations of sequences.

The substantial number of studies using sequence analysis to look at career patterns is indicative of the increasing enthusiasm for sequence analysis's ability to identify patterns in work-history data. Joseph et al. (2012), for instance, use sequence analysis to describe the career patterns of workers in IT fields with NLSY data and find a substantial amount of heterogeneity among the career paths of workers who are in an IT occupation at some point in their employment history. Halpin & Chan (1998) use OMA to analyze intragenerational class mobility based on an eight-category classification of occupations into classes. They identify 17 different clusters of mobility, illustrating how even a highly aggregated set of occupational codes can result in a very complex set of sequences that are difficult to interpret. Biemann et al. (2012) look at career stability using 20 years of data from the German Socio-Economic Panel using OMA, and Gubler et al. (2017) use OMA to study the impact of occupational inheritance on long-term career patterns of teachers in Switzerland. Van Winkle & Fasang (2017) use sequence analysis to analyze both cross-cohort and cross-country variation among 14 European countries in the complexity of employment trajectories or job sequences over the career between 1933 and 2008. They find that while the complexity of trajectories has increased over birth cohorts, this complexity was greater among countries (owing to institutional factors such as employment protection legislation) than across cohorts. Additional examples of recent applications of sequence analysis to study career mobility include Kovalenko & Mortelmans (2014), Flöthmann & Hoberg (2017), and Scherer (2001).

MOBILITY OUT OF LOW-WAGE AND TEMPORARY JOBS

The growth of polarized and precarious employment systems in advanced nations in the past three decades has highlighted the importance of studying the consequences of working in low-wage and temporary jobs for intragenerational mobility. In particular, studies have examined the chances that persons in these kinds of jobs are able to move to higher-paying and more secure jobs.

Low-Wage Jobs

While many low-wage workers earn low wages for an extended period of time, sizeable minorities are upwardly mobile. Hungerford (2011) for example, finds that among families in the bottom decile of income in 1989, 41.9% were still in the bottom decile in 1999, while 22.8% were in the fourth decile or higher. Looking at wage mobility using data from the SIPP, Connolly et al. (2003) find that though the median rate of wage growth for low-wage workers is rather small (close to 0.5% per year), the top 20% of their sample had average wage gains greater than 10% per year. Carrington & Fallick (2001) use longitudinal data from the NLSY and find that few workers are in minimum-wage jobs for extended periods of time, and Even & Macpherson (2004) find that the rate of mobility out of minimum wage jobs varies by occupation. Similarly, Vornovytskyy's (2011) analysis of data from the SIPP finds that approximately half of employed low-wage workers move out of low-wage jobs (defined as 50% of the median wage) over a three-year period.

A key question in the literature on low-wage jobs is whether or not working in them actually improves the chances of upward mobility. There are two competing perspectives: One view argues that these are dead-end jobs (so that the only way to move up is to get out, e.g., Andersson et al. 2005), while the alternative view suggests that some of these jobs are stepping stones where the accumulation of work-related skills increases the chance of subsequent upward mobility (Connolly

& Gottschalk 2001, Bihagen & Ohls 2004, Scherer 2004, Gash 2008). In adjudicating between these views, it is important to consider both the nonrandom selection of workers into these jobs and the role that selection on unobserved heterogeneity will play in attempts to estimate the hazard rate of upward mobility over time (Heckman 1981, 1991).

Much of the recent literature on the mobility of low-wage workers attempts to estimate the causal effect of work experience on mobility using an instrumental variable (IV) approach, but with mixed results. Cappellari (2007), for example, uses panel data from Italy to analyze mobility out of low-wage work, finding evidence that working a low-wage job reduces the likelihood of upward mobility. To get around difficulties caused by nonrandom entry into low-wage jobs, he uses parents' socioeconomic status as an IV, contending that it will affect entry into, but not the exit out of, low wages—arguably a questionable strategy. As with any IV, this rests on theoretical assumptions that cannot be directly tested (Moffitt 2001). Stewart & Swaffield (1999), Cappellari & Jenkins (2004), D'Addio & Rosholm (2005), and Mosthaf et al. (2014) use similar approaches. Knabe & Plum (2013) note the problems of state dependence and endogeneity in modeling the upward mobility of low-wage workers, and estimate a random effects model, which in turn makes assumptions about the distribution of the unobserved heterogeneity among workers. They argue that the positive stepping-stone effect of low-wage jobs is particularly large for less-skilled workers and individuals who have longer spells of prior unemployment.

In addition to research that attempts to identify the causal effect of working in low-wage jobs, a productive line of inquiry focuses on structural or institutional aspects of labor markets that might affect the rate of upward mobility. Fitzgerald (2006), for instance, finds evidence of the existence of career ladders for low-wage workers within key industrial sectors. Bihagen & Ohls (2007) use a large longitudinal data set of 1.1 million workers in Sweden to test whether women are more likely to be stuck in dead-end jobs. Their data allow them to combine a structural approach to low-wage labor markets with a test of the impact of gender-related constraints that affect the segregation of occupations and subsequent rates of upward mobility.

Temporary Jobs

The question of whether jobs are dead ends or stepping stones applies also to mobility out of temporary jobs. This varies by country. A study by the European Commission (Eur. Comm. 2016), for example, found that countries with higher proportions of temporary workers also had a smaller share of temporary workers moving to permanent employment. Moreover, temporary workers in liberal market economies such as the United Kingdom were most likely to transition to permanent employment, while the chances of such mobility were relatively low in Spain, where temporary jobs are typically dead ends that provide neither much training nor career opportunities.

Scherer (2004) uses longitudinal data from Great Britain, Italy, and Germany and finds that initial temporary employment does not have a harmful impact on future occupational positions. Gash (2008) suggests that temporary work is most likely to operate as a stepping stone to permanent employment in West Germany and the United Kingdom (compared with Denmark and France) relative to becoming unemployed. Autor & Houseman's (2010) analysis of Detroit's welfare-to-work program found that temporary-help job placements do not improve and may diminish future earnings and employment outcomes, while outcomes are raised for temporary employees who are hired directly.

Finally, Fuller & Stecy-Hildebrandt (2015) illustrate the ability of sequence analysis to uncover patterns not anticipated by existing research. They study the longer-term career patterns of temporary workers in Canada, finding that many workers who made a successful transition from temporary to more permanent employment actually ended up in a churning trajectory characterized by multiple moves back and forth from temporary work.

FUTURE DIRECTIONS FOR RESEARCH ON INTRAGENERATIONAL CAREER MOBILITY

Research on intragenerational career mobility is booming, driven by interests in the consequences of economic restructuring for individuals' life chances and in the workings of occupational and organizational labor markets. These issues are intimately related to fundamental questions in social stratification research about inequality and life chances, and to basic theories of how economic and organizational institutions affect inequality. We had a difficult time in this review keeping within the word limit, which made it apparent to us that there is currently a great deal of research activity on these topics. The research we have reviewed suggests some issues that deserve particular attention in the future.

Debates about mobility often revolve around whether mobility among occupations and organizations results from sorting or skill acquisition and transfer. As this differs among contexts, studies of patterns and mechanisms of occupational and organizational career lines are required.

We also need to understand different career patterns such as different lengths of tenure with a firm or an occupation, and orderly and disorderly sequences of multiple occupations. Are there fewer opportunities now for orderly, upwardly mobile careers, and for whom have these opportunities decreased? Since these career patterns are associated with different patterns of intragenerational mobility and inequality, it is especially important to understand how and why they might affect inequality differently for men or women, as well as for different racial and ethnic groups, age groups, and immigration and educational statuses.

Studies are necessary to show how patterns intragenerational mobility are linked to changes in occupational and class structures, such as the polarization of the labor force into high- and low-quality jobs, and a decline (if not a hollowing out) of the middle-quality jobs. This addresses important questions in stratification research such as the waning of the middle class in the past quarter-century in the United States (among other countries), and differences in peoples' opportunities to experience upward mobility, such as moving out of low-wage jobs.

Finally, more comparative—cross-national and historical—research on these topics is essential in order to understand better how economic, political, and social institutions and policies affect intragenerational career mobility. The availability of data to address these issues is growing, matched data sets that have information on both individuals and their employing organizations are becoming more common, and analyses of these multilevel data are becoming more sophisticated. Harmonized worker surveys across countries are even more widespread. Case studies of particular occupations, organizations, and industries are needed to complement these quantitative, multilevel studies.

Rosenfeld (1992) concludes her review of job mobility and careers by observing that we had the methods and data to address the key issues, and what was needed most was deeper conceptual and theoretical explanations of work histories and careers. This observation is still true. In the past quarter-century, research on intragenerational career mobility has benefited from the availability of a wealth of data and has embraced a diversity of methodological approaches. Less progress has been made on understanding the mechanisms that have produced the empirical results. Linking theoretical mechanisms to empirical patterns should be the central item on the research agenda for the next quarter-century of research on intragenerational career mobility.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

LITERATURE CITED

Abbott A. 1995. Sequence analysis: new methods for old ideas. *Annu. Rev. Sociol.* 21:93–113

Abbott A. 2003. Transitions and careers: mobility as process and outcome. In *Proceedings of the Cornell Conference on Frontiers in Social and Economic Mobility*. Ithaca, NY: Cornell Univ. Press

Abbott A, Tsay A. 2000. Sequence analysis and optimal matching methods in sociology: review and prospect. *Sociol. Methods Res.* 29:3–33

Aisenbrey S, Fasang AE. 2010. New life for old ideas: the "second wave" of sequence analysis. *Sociol. Methods Res.* 38:420–62

Aisenbrey S, Fasang AE. 2017. The interplay of work and family trajectories over the life course: Germany and the United States in comparison. *Am. J. Sociol.* 122:1448–84

Alon S, Tienda M. 2000. *Occupational careers of young women*. Work. Pap. 2000-5, Office Popul. Res., Princeton Univ., Princeton, NJ

Althauser RP, Kalleberg AL. 1981. Firms, occupations, and the structure of labor markets. In *Sociological Perspectives on Labor Markets*, ed. I Berg, pp. 119–49. New York: Academic

Andersson F, Holzer HJ, Lane JI. 2005. *Moving up or Moving on: Who Advances in the Low-Wage Labor Market?* New York: Russell Sage

Arthur MB, Rousseau DM. 1996. *The Boundaryless Career: A New Employment Principle for a New Organizational Era*. New York: Oxford Univ. Press

Auer P. 2005. *Protected mobility for employment and decent work: labour market security in a globalised world*. Work. Pap. 2005/1, Employ. Anal. Res. Unit, Int. Labour Organ., Geneva, Switz.

Auer P, Cazes S, eds. 2003. *Employment Stability in an Age of Flexibility*. Geneva, Switz.: Int. Labour Organ.

Autor D, Houseman SN. 2010. Do temporary-help jobs improve labor market outcomes for low-skilled workers? Evidence from "Work First." *Am. Econ. J. Appl. Econ.* 2:96–128

Bayaz-Ozturk G, Chen T, Couch KA. 2014. Intragenerational mobility and the ratio of permanent to total inequality. *Appl. Econ.* 46:4399–408

Becker R, Blossfeld HP. 2017. Entry of men into the labour market in West Germany and their career mobility (1945–2008). *J. Labour Market Res.* 50:113–30

Bernhardt A, Morris M, Handcock MS, Scott MA. 1999. Trends in job instability and wages for young adult men. *J. Labor Econ.* 17:S65–90

Bernhardt A, Morris M, Handcock MS, Scott MA. 2001. *Divergent Paths: Economic Mobility in the New American Labor Market*. New York: Russell Sage

Bidwell MJ. 2011. Paying more to get less: the effects of external hiring versus internal mobility. *Adm. Sci. Q.* 56:369–407

Bidwell MJ. 2013. What happened to long term employment? The role of worker power and environmental turbulence in explaining declines in worker tenure. *Organ. Sci.* 24:1061–82

Bidwell MJ, Briscoe F. 2010. The dynamics of interorganizational careers. *Organ. Sci.* 21:1034–53

Biemann T, Zacher H, Feldman DC. 2012. Career patterns: a twenty-year panel study. *J. Vocat. Behav.* 81:159–70

Bihagen E, Ohls M. 2004. *Towards a definition of dead-end jobs: empirically derived measures of dead-end jobs using Swedish data*. Paper presented at the Work, Employment & Society Conference, Manchester, UK

Bihagen E, Ohls M. 2007. Are women over-represented in dead-end jobs? A Swedish study using empirically derived measures of dead-end jobs. *Soc. Indic. Res.* 84:159–77

Blair-Loy M. 1999. Career patterns of executive women in finance: an optimal matching analysis. *Am. J. Sociol.* 104:1346–97

Blau PM, Duncan OD. 1967. *The American Occupational Structure*. New York: Wiley

Boisjoly J, Duncan GJ, Smeeding T. 1998. The shifting incidence of involuntary job losses from 1968–1992. *Ind. Relat.* 37:207–31

Bönke T, Corneo G, Lüthen H. 2014. Lifetime earnings inequality in Germany. *J. Labor Econ.* 33:171–208

Breen R, Jonsson J. 2005. Inequality of opportunity in comparative perspective: recent research on educational attainment and social mobility. *Annu. Rev. Sociol.* 31:223–43

Burkhauser RV, Couch KA. 2009. Intragenerational inequality and intertemporal mobility. In *The Oxford Handbook of Economic Inequality*, ed. W Salverda, B Nolan, TM Smeeding, pp. 522–48. New York: Oxford Univ. Press

Cappellari L. 2007. Earnings mobility among Italian low-paid workers. *J. Popul. Econ.* 20:465–82
Cappellari L, Jenkins SP. 2004. Modelling low income transitions. *J. Appl. Econom.* 19:593–610
Cappelli P. 2008. *Employment Relationships: New Models of White-Collar Work*. New York: Cambridge Univ. Press
Cappelli P, Hamori M, Bonet R. 2014. Who's got those top jobs? *Harv. Bus. Rev.* 92:74–77
Carr MD, Wiemers EE. 2016. *The decline in lifetime earnings mobility in the U.S.: evidence from survey-linked administrative data.* Work. Pap., Soc. Labor Econ., Chicago, IL
Carrington WJ, Fallick BC. 2001. Do some workers have minimum wage careers? *Mon. Labor Rev.* 124:17–27
Carroll MT, Powell JG. 2002. The immediate returns to early career mobility. *Issues Polit. Econ.* 11:1–20
Cheng MM, Kalleberg AL. 1997. How permanent was permanent employment? Patterns of organizational mobility in Japan, 1916–1975. *Work Occup.* 24:12–32
Choi S. 2016. How does job mobility affect inequality? Evidence from the South Korean economic crisis. *Soc. Forces* 94:1045–73
Cobb-Clark DA, Dunlop Y. 1999. The role of gender in job promotions. *Mon. Labor Rev.* 122:22–38
Connelly R, Gayle V, Lambert PS. 2016. A review of occupation-based social classifications for social survey research. *Methodol. Innov.* **https://doi.org/10.1177/2059799116638003**
Connolly H, Gottschalk P. 2001. *Stepping-stone jobs: theory and evidence*. Work. Pap. 427, Dep. Econ., Boston Coll.
Connolly H, Gottschalk P, Newman K. 2003. *Wage trajectories of workers in poor households*. Work. Pap. 555, Dep. Econ., Boston Coll.
D'Addio AC, Rosholm M. 2005. Exits from temporary jobs in Europe: a competing risks analysis. *Labour Econ.* 12:449–68
Diebold FX, Neumark D, Polsky D. 1996. Is job stability declining in the U.S. economy? Comment. *Ind. Labor Relat. Rev.* 49:348–52
Diebold FX, Neumark D, Polsky D. 1997. Job stability in the United States. *J. Labor Econ.* 15:206–33
DiPrete T. 1993. Industrial restructuring and the mobility response of American workers in the 1980s. *Am. Sociol. Rev.* 58:74–96
Dlouhy K, Biemann T. 2015. Optimal matching analysis in career research: a review and some best-practice recommendations. *J. Vocat. Behav.* 90:163–73
Dufur M. 2000. *Riding the Coaching Carousel: The Effects of Sex, Race, and Environment on the Occupational Internal Labor Market Mobility of Collegiate Managerial Personnel*. Columbus, OH: Ohio State Univ. Press
Dwyer RE. 2004. Downward earnings mobility after voluntary employer exits. *Work Occup.* 31:111–39
Edwards R. 1979. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. New York: Basic Books
Eur. Comm. 2016. *Employment and Social Developments in Europe 2015*. Brussels, Belg.: Eur. Comm. **http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7859&furtherPubs=yes**
Even WE, Macpherson DA. 2004. *Wage Growth among Minimum Wage Workers*. Washington, DC: Employ. Policies Inst.
Farber HS. 1998a. Are lifetime jobs disappearing? Job duration in the United States, 1973–1993. In *Labor Statistics Measurement Issues*, ed. J Haltiwanger, ME Manser, R Topel, pp. 157–203. Chicago: Univ. Chicago Press
Farber HS. 1998b. *Mobility and stability: the dynamics of change in labor markets*. Work. Pap. 400, Ind. Relat. Sect., Princeton Univ.
Farber HS. 2008. Short(er) shrift: the decline in worker-firm attachment in the United States. In *Laid Off, Laid Low: Political and Economic Consequences of Employment Insecurity*, ed. KS Newman, pp. 10–37. New York: Columbia Univ. Press
Fitzgerald J. 2006. *Moving up in the New Economy: Career Ladders for US Workers*. Ithaca, NY: Cornell Univ. Press
Flöthmann C, Hoberg K. 2017. Career patterns of supply chain executives: an optimal matching analysis. *J. Bus. Logist.* 38:35–54
Fligstein N, Shin T-J. 2004. The shareholder-value society: a review of the changes in working conditions and inequality in the U.S. 1976–2000. In *Social Inequality*, ed. KM Neckerman, pp. 401–32. New York: Russell Sage

Form WH, Miller DC. 1949. Occupational career pattern as a sociological instrument. *Am. J. Sociol.* 54:317–29
Frederiksen A, Halliday T, Koch A. 2016. Within- and cross-firm mobility and earnings growth. *ILR Rev.* 69:320–53
French E, Mazumder B, Taber C. 2006. *The changing pattern of wage growth for low skilled workers*. Work. Pap. 2005-24, Fed. Reserve Bank, Chicago, IL
Fuller S. 2008. Job mobility and wage trajectories for men and women in the United States. *Am. Sociol. Rev.* 73:158–83
Fuller S, Stecy-Hildebrandt N. 2015. Career pathways for temporary workers: exploring heterogeneous mobility dynamics with sequence analysis. *Soc. Sci. Res.* 50:76–99
Gabriel PE. 2003. Examination of occupational mobility among full-time workers. *Mon. Labor Rev.* 1:32–36
Gangl M. 2004. Institutions and the structure of labour market matching in the United States and West Germany. *Eur. Sociol. Rev.* 20:171–87
Gash V. 2008. Bridge or trap? Temporary workers' transitions to unemployment and to the standard employment contract. *Eur. Sociol. Rev.* 24:651–68
Gathmann C, Schönberg U. 2010. How general is human capital? A task-based approach. *J. Labor Econ.* 28:1–49
Geel R, Backes-Gellner U. 2009. *Occupational mobility within and between skill clusters: an empirical analysis based on the skill-weights approach*. Work. Pap. 47, Econ. Educ. Ser. Dep. Bus. Adm., Univ. Zurich
Gibbons R, Waldman M. 2004. Task-specific human capital. *Am. Econ. Rev.* 94:203–7
Gottschalk P. 2001. *Wage mobility within and between jobs*. Work. Pap. 01, Econ. Dep., Boston Coll.
Gottschalk P, Moffitt R. 1999. Changes in job instability and insecurity using monthly survey data. *J. Labor Econ.* 17(S4):S91–126
Gubler M, Biemann T, Herzog S. 2017. An apple doesn't fall far from the tree—or does it? Occupational inheritance and teachers' career patterns. *J. Vocat. Behav.* 100:1–14
Haller M, König W, Krause P, Kurz K. 1985. Patterns of career mobility and structural positions in advanced capitalist societies: a comparison of men in Austria, France, and the United States. *Am. Sociol. Rev.* 50:579–63
Halpin B, Chan TW. 1998. Class careers as sequences: an optimal matching analysis of work-life histories. *Eur. Sociol. Rev.* 14:111–30
Härkönen J, Manzoni A, Bihagen E. 2016. Gender inequalities in occupational prestige across the working life: an analysis of the careers of West Germans and Swedes born from the 1920s to the 1970s. *Adv. Life Course Res.* 29:41–51
Heckman JJ. 1981. Heterogeneity and state dependence. In *Studies in Labor Markets*, Vol. I, ed. S Rosen, pp. 91–140. Chicago: Univ. Chicago Press
Heckman JJ. 1991. Identifying the hand of past: distinguishing state dependence from heterogeneity. *Am. Econ. Rev.* 81:75–79
Hollister MN. 2009. Is optimal matching sub-optimal? *Sociol. Methods Res.* 38:235–64
Hollister MN. 2011. Employment stability in the U.S. labor market: rhetoric versus reality. *Annu. Rev. Sociol.* 37:305–24
Hollister MN, Smith KE. 2014. Unmasking the conflicting trends in job tenure by gender in the United States. *Am. Sociol. Rev.* 79:159–81
Holmes C, Tholen G. 2013. *Occupational mobility and career paths in the 'hourglass' labour market*. Res. Pap. 113, SKOPE, Univ. Oxford, UK
Hultin MIA. 2003. Some take the glass escalator, some hit the glass ceiling? Career consequences of occupational sex segregation. *Work Occup.* 30:30–61
Hungerford TL. 2011. How income mobility affects income inequality: US evidence in the 1980s and the 1990s. *J. Income Distrib.* 20:117–26
Inkson K, Gunz H, Ganesh S, Roper J. 2012. Boundaryless careers: bringing back boundaries. *Organ. Stud.* 33:323–40
Ishida H, Su KH, Spilerman S. 2002. Models of career advancement in organizations. *Eur. Sociol. Rev.* 18:179–198
Jaeger DA, Stevens AH. 1999. Is job stability in the United States falling? Reconciling trends in the Current Population Survey and Panel Study of Income Dynamics. *J. Labor Econ.* 17(S4):S1–28

Jäntti M, Jenkins SP. 2013. *Income mobility*. Discuss. Pap. 7730, Inst. Study Labor, Bonn, Ger.
Jarvis BF, Song X. 2017. Rising intragenerational occupational mobility in the United States, 1969–2011. *Am. Sociol. Rev.* 82:568–99
Johnson R. 2007. Wage and job dynamics after welfare reform: the importance of job skills. *Res. Labor Econ.* 26:231–98
Joseph D, Boh WF, Ang S, Slaughter S. 2012. The career paths less (or more) traveled: a sequence analysis of IT career histories, mobility patterns, and career success. *MIS Q.* 36:427–52
Jovanovic B, Nyarko Y. 1996. Learning by doing and the choice of technology. *Econometrica* 64:1299–310
Kambourov G, Manovskii I. 2008. Rising occupational and industry mobility in the United States: 1968–97. *Int. Econ. Rev.* 49:41–79
Kambourov G, Manovskii I. 2009. Occupational specificity of human capital. *Int. Econ. Rev.* 50:63–115
Katz MB. 1972. Occupational classification in history. *J. Interdiscip. Hist.* 3:63–88
Kerckhoff AC. 1995. Institutional arrangements and stratification processes in industrial societies. *Annu. Rev. Sociol.* 15:323–47
Kim Y-M. 2013. Diverging top and converging bottom: labour flexibilization and changes in career mobility in the USA. *Work Employ. Soc.* 27:860–79
Knabe A, Plum A. 2013. Low-wage jobs—springboard to high-paid ones? *Labour* 27:310–30
Kopczuk W, Saez E, Song J. 2010. Earnings inequality and mobility in the United States: evidence from Social Security data since 1937. *Q. J. Econ.* 125:91–128
Kovalenko M, Mortelmans D. 2014. Does career type matter? Outcomes in traditional and transitional career patterns. *J. Vocat. Behav.* 85:238–49
Larrimore J, Mortenson JA, Splinter D. 2015. *Income and earnings mobility in U.S. tax data*. FEDS Work. Pap. 2015-061, Fed. Reserve Syst., Washington, DC
Lazear EP, Oyer P. 2004. The structure of wages and internal mobility. *Am. Econ. Rev.* 94(2):212–16
le Grand C, Tahlin M. 2002. Job mobility and earnings growth. *Eur. Sociol. Rev.* 18:381–400
Leung MD. 2014. Dilettante or renaissance person? How the order of job experiences affects hiring in an external labor market. *Am. Sociol. Rev.* 79:136–58
Levine L. 2012. *The U.S. income distribution and mobility: trends and international comparisons*. Rep. 7-5700, Congr. Res. Serv., Washington, DC
Li Y. 2002. Falling off the ladder? Professional and managerial career trajectories and unemployment experiences. *Eur. Sociol. Rev.* 18:253–70
Logan JA. 1996. Opportunity and choice in socially structured labor markets. *Am. J. Sociol.* 102:114–60
Longhi S, Brynin M. 2010. Occupational change in Britain and Germany. *Labour Econ.* 17:655–66
Manzoni A, Härkönen J, Mayer KU. 2014. Moving on? A growth-curve analysis of occupational attainment and career progression patterns in West Germany. *Soc. Forces* 92:1285–312
Marcotte DE. 1995. Declining job stability: what we know and what it means. *J. Policy Anal. Manag.* 14:590–98
Marx M. 2011. The firm strikes back: non-compete agreements and the mobility of technical professionals. *Am. Sociol. Rev.* 76:695–712
McBrier DB, Wilson G. 2004. Going down? Race and downward occupational mobility for white-collar workers in the 1990s. *Work Occup.* 31:283–322
McDonald S, Benton RA. 2017. The structure of internal job mobility and organizational wage inequality. *Res. Soc. Stratif. Mobil.* 47:21–31
Miech RA, Eaton W, Liang K-Y. 2003. Occupational stratification over the life course—a comparison of occupational trajectories across race and gender during the 1980s and 1990s. *Work Occup.* 30:440–73
Mincer J, Polachek S. 1974. Family investments in human capital: earnings of women. *J. Polit. Econ.* 82:S76–108
Moffitt R. 2001. Policy interventions, low-level equilibria, and social interactions. In *Social Dynamics*, ed. S Durlauf, P Young, pp. 45–82. Cambridge, MA: MIT Press
Moscarini G, Thomsson K. 2007. Occupational and job mobility in the US. *Scand. J. Econ.* 109:807–36
Mosthaf A, Schank T, Schnabel C. 2014. Low-wage employment versus unemployment: Which one provides better prospects for women? *IZA J. Eur. Labor Stud.* 3:21
Mouw T, Kalleberg AL. 2010. Do changes in job mobility explain the growth of wage inequality among men in the United States, 1977–2005? *Soc. Forces* 88:2053–77

Mullins B, Rider M, Sjoquist DL, Wallace S. 2016. Long-run earnings mobility among low-income individuals. *J. Econ. Public Financ.* 2:154–70
Munnell AH, Sass SA. 2008. *Working Longer: The Solution to the Retirement Income Challenge*. Washington, DC: Brookings Inst. Press
Murphy EC. 2014. Workers' movement out of declining occupations in Great Britain, Germany and Switzerland. *Eur. Sociol. Rev.* 30:685–701
Neal D. 1999. The complexity of job mobility among young men. *J. Labor Econ.* 17:237–61
Neumark D, ed. 2000. *On the Job: Is Long-Term Employment a Thing of the Past*? New York: Russell Sage
Parkin F. 1971. *Class Inequality and Political Order*. London: Paladin
Parrado EA. 2005. Economic restructuring and intra-generational class mobility in Mexico. *Soc. Forces* 84:733–57
Parrado E, Caner A, Wolff EN. 2007. Occupational and industrial mobility in the United States. *Labour Econ.* 14:435–55
Perticara M. 2004. Wage mobility through job mobility. In *Econometric Society 2004 Latin American Meetings*, Pap. 204. **https://EconPapers.repec.org/RePEc:ecm:latm04:204**
Poletaev M, Robinson C. 2008. Human capital specificity: evidence from the *Dictionary of Occupational Titles* and displaced worker surveys, 1984–2000. *J. Labor Econ.* 26:387–420
Polsky D. 1999. Changing consequences of job separation in the United States. *Ind. Labor Relat. Rev.* 52:562–76
Redbird B. 2017. The new closed shop? The economic and structural effects of occupational licensure. *Am. Sociol. Rev.* 82:600–24
Rosenfeld RA. 1992. Job mobility and career processes. *Annu. Rev. Sociol.* 18:39–61
Sacchi S, Kriesi I, Buchmann M. 2016. Occupational mobility chains and the role of job opportunities for upward, lateral and downward mobility in Switzerland. *Res. Soc. Stratif. Mobil.* 44:10–21
Scherer S. 2001. Early career patterns: a comparison of Great Britain and West Germany. *Eur. Sociol. Rev.* 17:119–44
Scherer S. 2004. Stepping-stones or traps? *Work. Employ. Soc.* 18:369–94
Scherer S. 2005. Patterns of labour market entry—long wait or career instability? An empirical comparison of Italy, Great Britain and West Germany. *Eur. Sociol. Rev.* 21:427–40
Schmelzer P, Ramos AV. 2016. Varieties of wage mobility in early career in Europe. *Eur. Sociol. Rev.* 32:175–88
Schulz W, Maas I. 2012. Studying career success—the role of resources and norms for occupational status attainment in the Netherlands, 1865–1940. *Eur. Sociol. Rev.* 28:220–40
Shaw KL. 1987. Occupational change, employer change, and the transferability of skills. *South. Econ. J.* 53:702–19
Shin T-J. 2007. The impact of structural dynamics on job mobility rates in the United States. *Soc. Sci. Res.* 36:1301–27
Shniper L. 2005. Occupational mobility, January 2004. *Mon. Labor Rev.*, December, pp. 30–35
Shorrocks AF. 1978. The measurement of mobility. *Econometrica* 46:1013–24
Sicherman N, Galor O. 1990. A theory of career mobility. *J. Polit. Econ.* 98:169–92
Sørensen AB. 1974. A model for occupational careers. *Am. J. Sociol.* 80:44–57
Sørensen AB. 2001. Careers and employment relations. In *Sourcebook of Labor Markets*, ed. I Berg, AL Kalleberg, pp. 295–318. New York: Kluwer/Plenum
Spenner KI, Otto LB, Call VRA. 1982. *Career Lines and Careers*. Lexington, MA: Lexington Books
Spilerman S. 1977. Careers, labor market structure, and socioeconomic achievement. *Am. J. Sociol.* 83:551–93
Stewart MB, Swaffield JK. 1999. Low pay dynamics and transition probabilities. *Economica* 66:23–42
Sullivan P. 2010. Empirical evidence on occupation and industry specific human capital. *Labour Econ.* 17:567–80
Swinnerton KA, Wial H. 1996. Is job stability declining in the U.S. economy? Reply to Diebold, Neumark, and Polsky. *Ind. Labor Relat. Rev.* 49:352–55
Titma M, Roots A. 2006. Intragenerational mobility in successor states of the USSR. *Eur. Soc.* 8:493–526
Tolbert PS. 1996. Occupations, organisations and boundaryless careers. See Arthur & Rousseau 1996, pp. 331–49
Topel RH, Ward MP. 1992. Job mobility and the careers of young men. *Q. J. Econ.* 107:439–79

Upward R, Wright P. 2007. *Snakes or ladders? Skill upgrading and occupational mobility in the U.S. and the U.K. during the 1990s*. Res. Pap. 2007/38, Univ. Nottingham
Van Winkle Z, Fasang AE. 2017. Complexity in employment life courses in Europe in the 20th century—large cross-national differences but little change across birth cohorts. *Soc. Forces* 96:1–30
Vornovytskyy MS. 2011. *Longitudinal analysis of labor market performance of the working poor: evidence from the 2004 SIPP Panel*. Work. Pap., US Census Bur.
Weeden K. 2002. Why do some occupations pay more than others? Social closure and earnings inequality in the United States. *Am. J. Sociol.* 108:55–101
Wilensky HL. 1961. Orderly careers and social participation: the impact of work history on social integration in the middle mass. *Am. Sociol. Rev.* 26:521–39
Wilson G, Roscigno VJ, Huffman ML. 2013. Public sector transformation, racial inequality and downward occupational mobility. *Soc. Forces* 91:975–1006
Wu L. 2000. Some comments on "Sequence analysis and optimal matching methods in sociology: review and prospect." *Sociol. Methods Res.* 29:41–64
Yu W. 2010. Enduring an economic crisis: the effect of macroeconomic shocks on intragenerational mobility in Japan. *Soc. Sci. Res.* 39:1088–107