

Chapter 12

Working Class Careers: On-the-Job Experience and Career Formation in Munich, 1895-1910

John C. Brown and Gerhard Neumeier

Introduction

The historical study of careers typically focuses on two kinds of formal career structures, which have been dubbed the 'formal' and 'informal' career types by Miles (1993, pp. 31-32). Formal careers evolved within the context of large organizations such as railroads, the Metropolitan Police, or large banking or insurance firms. In these organizations, well-developed bureaucracies managed personnel and the organizations offered education or training. Informal careers followed an extended period of training or education, which served as the entryway into professional employment. The chemists who are the focus of the study by Mackie and Roberts in this volume offer a vivid illustration of this kind of informal career path. Entrepreneurs also pursued informal career paths after investments in a business or inheriting an on-going firm.

Particularly in central Europe (the German states, Austria and the Czech lands, and Switzerland) the first decades of the 19th century witnessed profound changes in the mechanisms governing working class careers in the city and in the countryside. Until the political and social turmoil that followed in the wake of Napoleon's victories, the system of training and qualification established by the guilds shaped the career paths of most skilled occupations. The guilds prescribed the kind and length of training, the formal qualifications, eventual employment (usually in the workshop of a master), and final employment (as the independent owner of a workshop). Guild regulations favoured stability in the development of careers for those able to gain access to the skilled trades. Children of those already in a skilled trade received preference in the selection of candidates for apprenticeships. Guilds also erected barriers to entry into skilled trades that prohibited the employment of Jews and the children of farmers or agricultural labourers. Even as recognizably modern career structures of the formal type were being developed, this system was in its phase of its demise (Simon, 1902, pp. 1-33).

In rural areas, the crisis facing western European agriculture during the last third of the nineteenth century undermined systems of farming and employment that had shaped the lives of farmers, farm labourers, and farm servants for

centuries. Wage labour replaced relationships formerly governed by mutual obligation, and restrictions on migration into cities—and emigration—had disappeared by the last third of the century.¹

The response of both rural and urban working people to the erosion and then disappearance of traditional structures for shaping their working lives poses one of the key historical questions of the economic transformation of western Europe during the nineteenth century. Drawing upon the labour economics literature, this study proposes a more expansive definition of a career to capture the experience common to large numbers of workers in the largest economy of Europe at the turn of the nineteenth century, Germany. These workers were the migrants who made the double transitions that marked from one-half to two-thirds of working lives between 1870 and 1910. Large numbers of workers moved from rural to rapidly growing urban areas. Most of these workers abandoned employment in agriculture for jobs in industry or in the services.²

Based upon an analysis of the migrants to one large German city, Munich, we conclude that a third strategy for career development lay open to workers by 1900. As Brown and Neumeier (2001a) have documented elsewhere, most workers during the period of high industrialization in Germany (through 1914) experienced rates of job-to-job mobility that were five times rates of workers in economies today. Along with other potential explanations, we suspect that movements among jobs involved a process of acquiring skills necessary for a particular career path. Employment histories available for migrants to Munich for the period 1895-1910 permit us to explore this hunch, with some surprising results.

Defining Careers: Perspectives of Economics and History

Sicherman and Galor (1990) offers a neo-classical perspective on career development. He defines a career as a sequence of educational choices and occupations that is intended to maximize expected lifetime income. If the objective is expanded to include lifetime utility, the model implies a sequence of training or education, jobs, and non-market work that secures for the individual the highest potential well-being over the lifetime. Two important implications of the model are relevant for the historical study of career paths among working people. First, the choice of education or training would have been a decision that would have had an important, if not necessarily decisive, influence on the subsequent career. Second, the pattern of employment would most likely reflect both the suitability of the conditions of work given the individual's skills and attitudes and the process of acquiring skills and experience valuable for subsequent employment.

As Sicherman and Galor (1990), Neal (1999), and McCall (1990) argue, the best sequence of jobs for a career will often involve both searches *across*

¹ See Kocka (1990, chaps. 3 and 5) for an extended review of the condition of working lives in the countryside and in the traditional crafts through 1870. Ritter and Tenfelde (1992) and Nipperdey (1993) survey conditions from the early 1870s through 1914.

² See Ritter and Tenfelde (1992, pp. 175-197) and Nipperdey (1993, pp. 39-42).

occupations and industries and searches for potential employers *within* an occupation and industry. Trying out differing occupations (or industries) offers the worker an opportunity to learn about the best match between his or her skills and abilities and the kinds of employment (by industry or occupation) that are available. Experience in any occupation will also increase the worker's reservoir of skills. Within the chosen occupation or industry, the worker will engage in further search to find the best employment situation. This neo-classical perspective holds two important implications for the careers of workers during this historical transition of rural to urban migration and occupational change.³ First, moves within industries, where the transferability of skills and knowledge is much greater, imply a different pattern of job tenure than moves across industries. Information gathered from a previous job within the industry or industry-specific skills acquired on the job should ensure that the subsequent job match would be a better one and thus last longer. As a worker acquires more skills specific to a particular industry, leaving that industry (or any job within that industry) poses a higher cost of foregone earnings. A second important implication is that more experience within an industry implies the acquisition of more skills specific to the industry; higher skills should result in higher incomes.

The economic and social history of Germany offers two contrasting views of whether workers could have potentially conformed to the rational pattern of behaviour implied by the neo-classical model of careers. One perspective that resonated with contemporaries emphasizes the underlying insecurity and randomness of the working lives of members of the working class. Arbitrary acts by employers or by supervisors, illness, the inability to control fertility, the uncertainty of economic change, and the paucity of opportunities for training or education—and the absence of resources—placed strict limits on an individual's ability to envision and then carry out a plan for a career. The average worker was either unwilling or unable to hold a job for long periods of time. Technological and organizational changes eroded opportunities for careers based upon traditional crafts and devalued other skills. The miniscule number of 'life-time' jobs reflected the lack of true 'career' opportunities for working people during the period. The well-known economist and social observer Werner Sombart argued that the churning in the labour market was the modern worker's way to mitigate the 'terror' of his working life, in the same way that a bedridden person 'rolls from side to side' to combat a fever (Mallmann, 1991, p. 362). From this perspective, working class careers could emerge only with the key developments of the twentieth century: the spread of unionization, the enactment of job protection legislation, the creation of job ladders internal to the firm, and the expansion of the welfare state.

A closer look at the contemporary literature of the early twentieth century suggests an alternative perspective. A notable share of workers engaged in the kinds of decision-making, investments in training, and use of employment opportunities to further their own careers and economic and social advancement suggested by the neo-classical career model. The studies of three generations of

³ This the perspective argued by Neal (1999).

about two hundred employees of the steelmaker Krupp by Ehrenberg and Racine (1912) underscore the importance of educational choice for the subsequent career paths of workers in the metal industries and for those who moved into white collar professions. The decision of a family to allow a son to undertake an apprenticeship that may have lasted three or four years required a careful balancing of the gains to the son's income and the family's more immediate need of another working member of the household. Financial support from a parent or other siblings was more often than not essential for the young worker to complete the apprenticeship. Studies of the career choices of workers in the Berlin watch and instruments industry (Heiß, 1910) and at the Siemens and Schuckert factory in Vienna (Deutsch, 1910) also note that for most, the choice of occupation—and the attendant apprenticeship—reflected a match with their own capabilities and an opportunity to enter an economically promising field.

Even after completing a formal apprenticeship, workers could continue formal education at night classes. In addition, moving from job to job served as a part of the training experience. For those occupations with a long-established tradition of a *Wanderschaft* (such as tailors, printers, masons, or metalworkers), the worker would move from town to town to enhance and deepen the skills that he had learned at his first apprenticeship (Kocka, 1990, ch. 5). This tradition was also apparent within urban labour markets in an informal way. Heiß (1910, pp. 131-171) offers detailed discussions of the career patterns of the skilled lathe operators, mechanics, watchmakers, and others employed in the Berlin mechanical instrument industry. One quarter of quits among these workers was intended to improve the status of the worker and secure further (on-the-job) training. Even among this group of skilled workers, many had worked at occupations unrelated to their current employment or had entered their current line of work after receiving training in an unrelated field. Deutsch (1910, pp. 261-269) discovered a similar 'colourful' pattern among the workers he interviewed in Vienna. Most currently employed at Siemens-Schuckert in skilled positions had also completed an apprenticeship in their field. Yet, their careers after completion of their training also included employment as woodworkers, watchmakers, in rubber manufacturing plants, and as ironworkers, coachmen, or gardeners. Career formation at the turn of the century involved both formal training and on-the-job experience.

Employment Histories as a Source for the Study of Careers: the *EBA*

One approach to resolving these disparate views of the existence of career strategies among workers at the turn of the nineteenth century is to examine work histories. One source used in the study of English careers is worker autobiographies. Although useful in identifying career patterns for the twentieth century, these are less suitable for the nineteenth because they lack the necessary detail on length of employment, industry, and occupation that would capture the rich variety implied by the contemporary descriptions.

Fortunately, an alternative data source is available from the Munich City Archive that allows more detailed analysis. Legal and political circumstances

unique to Bavaria created the conditions for the availability of employment histories for large numbers of migrants to Munich, which was Germany's third largest city by 1910. Known as the *Einbürgerungsakten* (EBA), they provide coverage for the two decades prior to the outbreak of war in 1914. The legal rationale for the creation of this unique source also provides insight into its suitability as a source for the study of careers.

With a population of 630,000 by 1910, Munich was Germany's third largest city after Berlin and Hamburg. Over the forty years following the unification of Germany in 1871, population growth in Munich averaged 3.2 percent per year. As the capital of the Kingdom of Bavaria and the seat of the ruling Wittelsbach family, Munich had retained its character as a 'residence city' through the mid-1800s. The court, government ministries, and the military were key employers. Starting in the 1860s, the city began a shift towards a diversified industrial and service economy. Forty percent of its working population was in the military, employed by the government, or operated an independent business in 1871. By 1910, that share was only 20 percent. By 1907, key industries included machine making, food processing (including the renowned breweries), construction, and hospitality (restaurants and hotels.) In this way, Munich was similar to such diversified cities as Frankfurt or Breslau rather than the heavy industrial centres such as Essen or Dortmund.⁴

Similar to other German cities during the period of rapid industrialization, Munich relied heavily upon in-migrants for most population growth. By 1900, only one-fifth of the male population in the prime working ages (16-49) was actually born in Munich. The remainder consisted primarily of migrants from the regions of Upper Bavaria (of which Munich was also the capital), Lower Bavaria, the Upper Palatinate, and Swabia.⁵

Munich was in one important way atypical of other large German cities. Upon unification, most German states adopted the Prussian practice of tying full rights of citizenship in a town to residence (Hirsch and Lindemann, 1905). Bavaria, of which Munich was the capital, maintained an older practice that was rooted in the efforts of the 1820s to restrict claims on poor relief after the collapse of guilds and other institutions that curtailed in-migration by working people into cities and towns. Similar to England and Wales under the Old Poor Law, each resident of Bavaria had a legally designated *Heimat*, or Home Town, which was responsible for providing him or her with poor relief as well as a marriage license. The right to live in a town (*Heimatrecht*) and have full access to poor relief could be secured either through birth (the child received the *Heimat* of the father), marriage (the bride received it from the husband), or by applying to town authorities.⁶

⁴ See Fisch (1988, chap. 1) and Laux (1983), who provides a classification of German cities by economic structure. The growth rate refers to the population within the boundaries of the city in 1910.

⁵ See Munich Statistical Office (1901, Table 11). This general pattern applies to most German cities during this period.

⁶ The status of citizen (*Bürger*) could also be conferred upon application to the city. Obtaining citizenship required property ownership or ownership of a business. Citizens had

Application procedures adopted in the mid-1860s under Article 7 of the law required five years of continuous residence in the town, evidence of economic independence that typically included payment of state taxes on income, business, or property and payment of a substantial fee. Subsequent modifications to the law effective in 1899 introduced an alternative, which required only seven years of residency and waived the application fee (*Gesetz*, 1899, pp. 642-643).

The records that were created to carry out the provisions of the law governing *Heimatrecht* are found arranged by year and then alphabetically by last name in the EBA collection of the Munich City Archive. A typical application includes about thirteen to sixteen forms. The forms include extracts from the sentencing register, reports from the municipal registration bureau on the length of residence, and whether or not the applicant was assessed state taxes during the stay in Munich. The practice of the Munich municipal administration found in the records reflected the two alternative forms of application for *Heimatrecht*. An examination of a small subsample of the records from 1904, 1906, and 1910 revealed that by 1904, applicants for *Heimatrecht* under Article 7 satisfied the legal requirements with certification that they had paid state income or wealth taxes during the preceding four years.⁷ Those applying under Article 8 faced a similar set of requests for information, but were required to meet the test of financial independence for the preceding seven years. For both types of applications, city authorities collected information about employment histories during the previous seven or eight years using a variety of different forms, but primarily relying upon the records of the local health insurance funds. As would be expected, the overwhelming majority of those applying under Article 8 were wage workers. Those applications filed under Article 7 came from a wide variety of occupational backgrounds, but included only a minority of wage workers.⁸ Data on employment histories is available for about 85 percent of the individuals applying for *Heimatrecht* from the early 1900s to after 1910.

An extract from the 'workers' list' of the largest local insurance fund, the *Ortskrankenkasse*, provides the primary source of the data on employment.⁹ For each job, the extract lists the dates that employment began and ended and the employer. Occasionally the list includes the industry. The bureaucracy's collection

the right (and responsibility) to vote in municipal elections and serve in city government. See Hirsch and Lindemann (1905).

⁷ The records examined were in EBA 1904(1-75), EBA 1906(1-80), and EBA 1908(1855-1786).

⁸ Excluding applications from those clearly no longer in the labour market, the applications under Article 8 numbered 55 and those under Article 7 numbered 51. Of the Article 7 applicants, 20 percent were wage workers or skilled workers without a clear designation of status. The remainder were city employees, employees of the state railway, professionals, white collar workers, and owners of a shop or business (30 percent).

⁹ German law mandated that the employer provide health insurance for most workers aged 14 to 70 who had been employed one week or more (Dawson, 1913, ch. 2). In practice, large numbers of shorter spells of employment were also listed in the extracts from the health insurance records.

of information about employment histories drew upon other records as well, including the community and guild insurance funds, 'service books' maintained by servants, and interviews with workers. Any notable gap in the assembled employment histories was noted with a thick mark in crayon to be investigated further. Signed statements from prior employers or the applicant were also used to fill in such gaps. Other information collected on the main application form for *Heimatrecht* included the applicant's date of birth, birthplace, home town, occupation, marital status, and surviving children. Sometimes the occupation of the father is noted as well. The data set collected from the EBA source includes 284 male workers with over 2,600 individual jobs. For 80 percent of these jobs, the employer's name provided sufficient information to link the employer to a firm name and industry using the city directories of the period. The census of businesses for 1907 (Munich Statistical Office, 1910) provided information on the appropriate industrial classification of the firm and on the average employment per firm within the industry. For a minority of larger firms, Kahn (1913) provided information on actual employment.¹⁰

The police registration records from the collection PMB (*Polizeimeldebögen*), supplemented the occupational and personal information found in the EBA records and provided information on tax payments. About sixty percent of the records could be matched with information from the PMB collection. Brown and Neumeier (2001b) provides additional details and Brown, et al. (1993) describes the source.

A detailed examination of the EBA source presented in Brown and Neumeier (2001b, pp. 14-16) includes an assessment of its coverage and reliability. Once he or she had lived in Munich for at least seven years, the probability of a migrant applying for *Heimatrecht* was about 80 percent. It appears that lower income residents were slightly more likely to apply than higher income residents. A comparison of the industries of employment of workers in the sample with the actual employment on the date of the 1907 census found that workers in the textile industry were under-represented and that workers in the food and beverage industry was over-represented. Nonetheless, the χ^2 test for a difference in the sample distribution by industry from the distribution found in the census was soundly rejected. A test for significant differences in the age distribution of the population between the EBA sample and the age distribution for Munich in 1900 was also rejected.¹¹

¹⁰ The EBA sample was drawn by alphabet to enable data collection. The records examined include those with surnames a, b, p, d, t, g, k, s, and w. The sample also includes the employment histories for about 25 single women, which will be examined in subsequent research. The city directories for the period (Munich, Polizeidirektion, 1896-1911) enabled linkage of the employer names with the relevant line of production.

¹¹ The test statistics were 17.5 (with 22 degrees of freedom) and 2.9 (with 5 degrees of freedom).

Defining and Identifying Alternative Career Paths

The EBA records and the linked records from the registration records (PMBs) offer rich insight into the patterns of occupations and industries of Munich workers. Unlike the EBA records, which list the occupation of the worker at the time of applying for *Heimatrecht*, the PMB records list any occupations recorded for the worker over his stay in Munich. Of the male workers in the full sample for whom listings of occupations were available in the PMB source, one-third listed only one occupation. Another third had two occupations listed and the remaining third averaged about four occupations. The most common single occupations of workers were day labourer and cabinetmaker. Unfortunately, the occupational information typically does not carry a date, nor is it clear under what circumstances the occupational information was updated.

The detail on industry is for this reason a more satisfactory indicator of the movement or relative stability of workers within occupations demanding a particular set of skills. For the 270 workers for whom most of the information on employers is complete, about 40 percent worked in only one industry. With the exception of construction, which was vastly under-represented among workers working in only one industry, and food and beverage, which were proportionately over-represented, the distribution of particularly stable workers followed the distribution of all industries in the sample as a whole. Of the remaining workers, one-third worked in two or three industries, and one-quarter worked in an average of five.

One way to summarize this pattern of diverse experiences is to classify the observed sequence of jobs by the degree of change over the period under observation. Following Neal (1999, p. 247), the study proxied a change in the career path with a change in industry under the assumption that skills specific to an industry were less likely to be transferable to other industries.¹² Taking the seven to fifteen year period for which the job histories were available, the average change per new job could range from zero (always within the same industry) to one (each new job represents a change in industry from the previous job). To ensure that major changes received the appropriate consideration, the changes were weighted by the length of job. For all workers, about one-third of new jobs took place in an industry that differed from the previous job. The pattern of job-to-job mobility that received so much attention from contemporaries was also a pattern of mobility across industries.

To summarize these patterns of mobility, we classified workers according to three different patterns of change from the beginning to the end of the period for which we had job histories. For workers displaying no change in industry, we classified the career pattern as stable. For workers displaying high rates of switching among industries (typically above 0.7), we classified the career pattern as unstable. Workers demonstrating a marked reduction in switching were

¹² German censuses of businesses used a 22-industry classification scheme. This study followed that scheme and added a 23 industry: construction.

classified as stabilizing. Table 12.1 summarizes the results of this grouping and key characteristics of the workers in each group.

Table 12.1 Classifying Munich workers by industry-to-industry mobility

Pattern of mobility	N	Median age	Mean		Percent Skilled	
			Changes per job	Jobs per year	General	Specific
Stable	153	27	0.08	1.40	13	50
Stabilizing	34	29	0.51	2.14	19	40
Unstable	86	27	0.88	2.20	12	34

Source: EBA employment histories dataset.

Note: The median age refers to the median age at the start of the job history. The changes per job refers to changes in industry per new job.

The largest group is stable workers of whom about 65 held only one job during the period for which we have a job history. The remainder that held more than one job changed the industry of employment about every twelfth job. Even for the stable workers, the mean job tenure was under nine months, although it should be noted that the median was three years. The unstable workers switched back and forth among different industries. Surprisingly, this group held only about 50 percent more jobs than the stable group. Even for this group, the median job tenure was about a bit over a year. The third column shows that instability did not depend upon age; the work histories for all three groups start at roughly the same age.

The registration records (the PMBs) permitted us to classify the skill level of the worker upon arrival to Munich for two-thirds of all of the workers in the sample. Those reporting skilled occupations were further classified into two groups. Skills that were readily transferable across industries (locksmiths, fitters, etc.) were classified as *general* skills. Skills that were useful only within the confines of an industry (butchers, tailors, or bakers, for example) were classified as *industry-specific* skills. The final two columns of the table illustrate the importance of specific skills for workers with stable patterns of mobility compared with the unstable workers. Skilled workers formed a majority of all three groups, although industry-specific skills seemed most important in the stable group.

A few extracts from the biographies of these migrants to Munich help illustrate the patterns summarized in Table 12.1. Consider first the cases of two workers with stable careers. August Pröbstl was born in 1873 in Füssen, a town of 3,000 in the Bavarian Alps southeast of Munich. He moved to Munich at the age of 19, apparently after receiving some training as a cabinetmaker. Over the eight years for which the work history is available, he had 17 different jobs. All of them drew on his original skills, although his employers included a furniture factory, a factory for the manufacture of blinds, as well as a master cabinetmaker. Subsequent to his application for *Heimatrecht*, he married. The biography of another migrant, Georg Späth, offers a remarkable contrast. Born in 1870 in Pülvermühle, a small village about 150 kilometres north of Munich, he migrated at age 23. He married at age 26, when the work history also begins. It continues for another ten years. His occupations are unremarkable. He was a day labourer and for a short time owned a

small grocery. His employment history was stable and included only three jobs. After initially working for a baker, he found steady employment with construction firms specializing in concrete construction.

At the other extreme are the work histories of the unstable workers. Johann Beuschlein was born in 1875 in Böttigheim, a village of about 800 inhabitants located 280 kilometres northwest of Munich. Beuschlein was also a trained cabinetmaker when he moved to Munich at age 22. His work history begins shortly after his arrival and continues for another eleven years. Over that period, he held 16 jobs in asphalt construction, cabinet making, flooring, and gardening. His final job was with a wagon and saddle maker. Valentin Berghofer was born in 1876 in Haarbach, a village of about 250 residents located 70 kilometres northeast of Munich. At 21 he moved to Munich and at 22 he married. His occupations are listed as a day labourer and a small grocer. His work history covers the first eleven years of his residence in Munich, during which time he held four jobs. Starting at a large Munich leather factory, he moved on to work at the Schuckert Company, which manufactured electrical machinery and eventually merged with Siemens. His next job was with a dealer in lumber, and finally he worked for a factory manufacturing flooring.

Finally, consider the case of a worker whose pattern of employment demonstrated increased stability. Johann Dotzler was born in 1880 in the small village of Steinweg, which is located about 80 kilometres north of Munich. He was apparently trained as a butcher, although his registration form also lists day labourer as an occupation. Arriving in Munich at the age of 18, he worked during his first five years for a series of butchers specializing in cured meats. For some reason, he began working for construction firms, a brewery, a restaurant, and then remained in construction through 1908. All told, he held 25 jobs over the ten years for which we have his work history.

It is plausible that the regularities found among the patterns of employment in the work histories are consistent with an effort to use on-the-job experience and job moves to build a career. It is also possible that these patterns emerged more as the outcome of a random process. The economics literature on labour markets suggests two empirical regularities that should be evident if these patterns of employment actually correspond to career choices. One important implication is that the *history* of prior jobs should matter for the suitability of the current job for the worker. Experience acquired within an industry—industry-specific skills—must have some bearing on the ability of the worker to do better in subsequent employment within the same industry. The job histories allow us to test two implications of acquiring industry-specific skills. The *learning hypothesis* focuses on the length of job tenures. Similar to the acquisition of firm-specific skills, acquisition of industry-specific skills should lead to a longer tenure in any one job as long as that job is within the same industry. By increasing earnings, industry-specific skills raise the cost of leaving the industry and any particular job; that reduces the likelihood of a quit. The *earnings hypothesis* focuses on the pattern of earnings growth over the work life. Holding other factors constant, we would expect that the acquisition of industry-specific skills should increase earnings growth compared with a job history that exhibits substantial mobility across industries. The work histories and

linked information from the registration records permit direct tests of both of these hypotheses.

Testing the Learning Hypothesis

First developed by McCall (1990) and developed further in Neal (1999), the learning hypothesis draws upon the economic theory of jobs summarized in Parsons (1986). As noted in the introductory chapter by Owen, economists have developed matching and human capital theories of the job to account for the phenomenon of turnover, or voluntary or involuntary ‘separations’ of the employee and employer. The matching approach argues that the length of time an individual will remain in any particular job depends upon the quality of the match between the skills of the individual and the opportunities offered by the job. Both the employer and the employee enter into the labour contract with imperfect information. The longer the match lasts, the more information both sides have about whether the job ‘match’ is mutually beneficial. Over time, the employee discovers whether the working conditions are suitable and whether his or her skills are well suited for the job. The employer finds out whether or not the employee is reliable and productive. As information becomes available with time on the job, the match either continues or is terminated.

The human capital theory of job tenure focuses on the distinction between general skills—which are typically acquired by training and can be applied in a wide range of jobs—and skills that are specific to the conditions found at the workplace. McCall (1990) and Neal (1999) both note that that on-the-job experience can also be specific to an occupation or industry. McCall focuses on the contribution that more information about an industry can make to improve the quality of a job match at the beginning of employment. Neal develops this point further with his focus on the acquisition of industry- or occupation-specific skills. Virtually all of the skilled workers interviewed by Heiß (1910) and Clemens (1910) in Berlin and Vienna had gone through long-term apprenticeships to acquire general skills. In addition, they acquired skills on-the-job that were specific to the particular sub-branch of industry where they were currently working.

These approaches to understanding the employment relationship have key implications for the pattern of jobs observed in the work histories. If workers were acquiring skills on the job, then we would expect that more experience *within* an industry would *ex ante* lead to a better match with a new employer. Switching industries, for whatever reason, would necessarily mean that the worker was approaching the new employment with less information about the new job and about the kinds of jobs performed in the new industry compared with if he or she had remained within the industry of the prior job.

This form of the learning hypothesis holds a particular implication about the length of the individual job, or the event in terms of the terminology developed by Maas in her essay on event history analysis. Once a job is underway, the employer and the employee face the risk that the next day, the job will end through a quit or through a firing. That risk is known as the hazard of a job separation, or the

(conditional) probability of a quit given that the job has already lasted as long as time t (or not yet ended). If $F(t)$ is the probability that the job will last as long as t , then the density function for this probability is $f(t)$, or the instantaneous chance that the job will end right after t . The hazard of a quit is then formally defined as

$$(1) h(t) = \frac{f(t)}{1 - F(t)}$$

Controlling for other influences, experience acquired at a previous job in the same industry should ensure that the risk of a quit at any point during the subsequent job is lower. Implementing the statistical evaluation of the learning hypothesis requires a specification of both the hazard function and of the appropriate sub-sample from the worker job histories. Typically, specifications recognize that that $h(t)$ is more appropriately expressed as $h(t|\mathbf{z})$, where the vector of worker and job attributes \mathbf{z} will also have an impact on the hazard. Two forms of the hazard function are appropriate. The first is the partial likelihood Cox proportional hazard model: $h(t)=\lambda(t)\exp(-z\beta)$, where no functional form is placed on $\lambda(t)$. The alternative is to use a particular functional form for $\lambda(t)$. The specification with the most flexibility is the generalized gamma distribution. The second specification allows for some estimate of whether the hazard of a quit rises or falls with time on the job. The learning hypothesis implies a declining hazard of job separation.

A significant share of worker histories covered virtually all of their employment history in Munich. We restricted analysis to those workers whose job histories began within a month after their arrival in Munich. The sample that we analyzed included all second jobs for which information on the length of the prior job and the industry of that job was available. Subsequent jobs were included if they involved an additional change of industry. This resulted in a sample size of 54 workers who held 59 jobs in total.¹³

Specification of the potential influences on the hazard of a quit begins with the key learning hypothesis. The variable *Priortenure* equals the length of the prior job if that job was within the same industry. *Priortenure* equals zero for a job that resulted from a change of industries. The learning hypothesis implies that the coefficient on *Priortenure* is negative; prior experience in the industry should lessen the hazard of a quit. Other influences on the length of job tenures would include whether or not the worker had general skills or skills specific to an occupation. Since it was common for workers in fields such as baking and butchering to acquire additional experience by moving among different employers, we expect occupation-specific skills will result in a higher probability of quitting. Indeed, a positive coefficient on specific skills underscores the importance of job-to-job mobility in the acquisition of industry-specific skills. Finally, two indicators of the background of the migrant help identify other influences on stability at the

¹³ Many of the employment histories recorded jobs a year or two after the migrant arrived in Munich. Incomplete information on the employer also restricted the size of the sample.

job. A migrant with a skilled father would have considerably more information on working in a non-agricultural setting and would most likely have a better job match *ex ante*. A worker from a more highly developed part of Bavaria (measured by the real earnings in the district of birth) would be more likely to quit because of a lower downside cost to not being able to find subsequent employment in Munich.

Table 12.2 Results of hazard analysis

Independent Variable	Mean (s.d.)	Estimation Method	
		Cox	Gamma
Priortenure	0.34 (0.98)	-0.48 (0.20)	-0.63 (0.24)
Workers per firm (in 1,000s)	176 (359)	-0.15 (0.33)	-0.28 (0.53)
General skill	0.22 (0.42)	0.16 (0.55)	0.46 (0.93)
Specific skill	0.25 (0.44)	1.74 (0.53)	2.45 (1.08)
Father skilled	0.33 (0.48)	-1.07 (0.58)	-1.60 (0.82)
Real earnings in district of birth (in 100 Marks of 1912)	4.46 (087)	0.88 (0.33)	1.00 (0.49)
Construction or construction trades	0.05 (0.22)	1.40 (0.49)	1.89 (0.77)
Married	0.48 (0.50)	-0.78 (0.47)	-0.78 (0.65)
Age	29 (8.52)	0.05 (0.03)	0.06 (0.06)
N		59	59
χ^2 Test of Significance (9 degrees of freedom)		40.5	95.9

Source: Results of maximum likelihood estimation.

Note: Standard errors of estimated coefficients in parentheses. The estimation used the semi-parametric approach of Cox and the generalized gamma specification of the hazard function. The negative of the coefficient estimates are presented for the gamma specification so that the results are consistent with the coefficients from the Cox specification.

Other variables control for the industry (construction), the number of workers per firm, whether or not the worker was married at the time of employment, and the worker's age at the beginning of the job. Jobs in construction would be shorter (the coefficient should be positive) and quits would be less likely at larger firms, which offer more opportunities for the acquisition of firm-specific skills. Married workers have typically been found to be more stable. Older workers likewise would be expected to have greater stability.¹⁴

¹⁴ Marriage entered as a time-varying independent variable to allow for an effect of marriage if the worker became married in the course of the job.

Table 12.2 presents the results of the statistical analysis of the hazard functions using the partial likelihood (Cox) or the parametric (Gamma) method. The second column presents the mean values of the independent variables. The third and fourth columns present the estimated coefficients. To ease interpretation, note that a *negative* coefficient implies the variable lowers the hazard of a quit.

The results of the statistical analysis provide strong support for the learning hypothesis. In both cases, the one-tail test that the coefficient on *Priortenure* is positive is rejected at levels of significance ranging from one down to 0.5 percent. Note that for the Cox estimation, the proportional impact of a change in the variable z_i on the hazard is $\exp(\beta^* \Delta z_i)$. Increasing the prior tenure from 0 to 10 months, the median value for those who remained in the same industry, would lower the conditional likelihood of a quit by one-third. The estimated parameters of the generalized gamma function imply as well that quit rates decline with tenure on the job, which is consistent with models of on-the-job learning.¹⁵

Workers with specific occupational skills had a quit probability that was five times the probability of other workers, which is consistent with accounts stressing the acquisition of skills across different firms within the same industry. A skilled father lowered the quit probability by two-thirds. The only other variable to exert such a strong influence was the annual earnings paid agricultural labour in the migrant's district of birth. The difference in earnings between the relatively prosperous home district of August Pröbstl and the impoverished home district of Georg Späth was 100 Marks. The relative wealth of Pröbstl's background would have doubled the hazard rate. Finally, it is noteworthy that once other influences are accounted for, marital status and age have little influence on the hazard rate for migrants.

Testing the Earnings Hypothesis: Did a Career Enhance Mobility?

The results in Table 12.2 provide strong support for the learning hypothesis. Patterns of job changes early on in the migrant's stay in Munich are consistent with the acquisition of industry- as well as job-specific skills. The other implication of the neo-classical model of working class careers is the earnings hypothesis. Consistent with the notion that learning within an industry enhances worker skills and potential earnings, we would expect that those workers able to make the best use of their pattern of job moves to acquire skills would also experience a steeper earnings profile. Three measures on mobility are available from the worker histories and the registration information that allow an assessment of this key hypothesis. The first two focus on occupational mobility. The third focuses on the growth of real income.

In historical sociology, an important measure of a successful career has been upward occupational mobility. Two measures of mobility are available for sub-groups of the workers for whom we have collected employment histories. The first

¹⁵ With their estimated standard errors in parentheses, the parameters are κ [1.31(1.59)] and σ [1.16 (0.62)].

measures intra-generational mobility and compares the occupation recorded when the migrant arrived in Munich with the occupation recorded at the time of the application for *Heimatrecht*. The alternative measure—inter-generational mobility—compares the occupation of the father, which is available for about one-half of 284 workers, with the occupation of the son at the time when he applied for *Heimatrecht*. Over one-third of the migrants were sons of skilled workers and one-quarter were the sons of farmers. Table 12.3 summarizes the results of the two measures of occupational mobility.

Table 12.3 Occupational mobility among migrants to Munich

Direction of Change	In Percent of Total	
	Intra-Generational Mobility	Inter-Generational Mobility
Upward	34	18
Unchanged	58	42
Downward	7	40
N	284	182

Source: EBA employment history dataset.

Particularly when comparing the status of migrants and their fathers, it would appear that the move to Munich resulted in a lower occupational status for the worker. Of course, it should be kept in mind that the occupations recorded for the sons reflect their standing at a median age of 35, which may have been below their highest occupational attainment.¹⁶ In addition, it is not clear whether the migrants from impoverished areas of rural Bavaria would have experienced any greater improvement in occupational status had they elected to remain in their home village. Long (2003, pp. 29-30) finds that in general, over a period of 30 years the move to the city notably increased the mobility of rural to urban migrants in England. The alternative measure offers a more optimistic result. After a median stay of about 9.5 years, one-third of the workers experienced an improvement in their status and only 7 percent experienced downward mobility. Both results—high intra-generational upward mobility and notable inter-generational downward mobility—are consistent with what Bleek (1991, pp. 203-223) found for residents of Munich's West End during the same period as our study.

An alternative perspective that is more in the spirit of a neo-classical model of careers focuses on changes in earnings. Detailed information on hourly or annual earnings is not available for the workers in the dataset. The registration records available for about 160 workers offer information on the payments of the Bavarian state 'class tax', a tax assessed on estimated earnings, at the beginning of their stay and through 1907/1910. The tax information can be used to calculate rough estimates of earnings at different points in the migrant's life in Munich. When corrected for inflation, the median annual increase in earnings over the period of

¹⁶ See the general critique of father-son comparisons found in Mayer and Müller (1978).

residence in Munich was about one percent, with a standard deviation of 0.08 percent. None of the workers registered a decline in estimated real earnings. This growth is consistent with average gain in real wages reported in Desai (1968) for the same period.

A crucial issue is whether the pursuit of a stable career path enhanced the mobility or growth in income of the migrants to Munich. The statistical evaluation of this question uses two different approaches. For the mobility measures, we estimate ordered logit equations of the form $\text{mobility} = f(\text{career, skills, background, age})$. The three levels for the ordered logit are decline, no change, and advancement. The analysis of the growth of real earnings uses the annual real growth in earnings as the dependent variable. The regressions are quantile regressions, which minimize the prediction error for those in the 25th and 75th percentiles of the distribution of earnings growth. This approach allows for differential influences of the independent variables on the likelihood of income growth for those experiencing differing degrees of success in Munich.

The independent variables used in the analysis include a dichotomous variable for whether or not the worker had a stable career path. The remaining variables are defined as in the analysis of quit behaviour. A stable career path would be expected to enhance mobility, as would a strong set of skills upon arrival in Munich. One would expect that a skilled father would also enhance mobility and earnings growth. Migrants to Munich from wealthier districts of Bavaria should have better prospects if only because of the higher likelihood of familiarity with a more developed economy.

The lower the age at which the migrant arrived in Munich, the greater the acquisition of labour market experience that would be best suited for employment opportunities in the city. This would be particularly important if a significant share of job skills were acquired on the job. Finally, one may expect that remaining single diminished the incentives to achieve income growth sufficient to take care of a family.

Table 12.4 presents the results of the statistical analysis. Consider the results for occupational mobility. Overall, the model of economic advancement does relatively poorly in explaining the social mobility of migrants to Munich as expressed by changes in occupation, either after their arrival in Munich or in comparison with their fathers. Career stability did positively influence upward mobility across generations. Married workers and those starting their working lives in Munich at a younger age also were more likely to experience upward mobility. Most surprising is the *negative* influence of occupation-specific skills on intra-generational mobility. As will be seen when looking at the results on the growth of income, this result most likely reflects a basic conceptual flaw in focusing exclusively on occupational mobility during a period of substantial migration and changes in the range of occupations available to the migrant. The young man trained as a journeyman butcher in his economically stagnant home village of 400 who migrated to Munich may have remained a journeyman butcher for the remainder of his working life. He may even have moved into a semi-skilled occupation such as a machine operative. Measured by occupational mobility, his career would reflect a failure to get ahead or even a decline in status. Nonetheless,

he could have achieved greater income growth than if he had remained at home. The city offered a much wider range occupations and ways to acquire skills on the job.¹⁷

Table 12.4 Estimating the impact of a career path on mobility and earnings

Variable	Estimated Coefficients				
	Mean (s.d.)	Social Mobility		Growth in Earnings by Percentile	
		Inter- generational	Intra- generational	25th	75th
Stable career path	0.58 (0.50)	0.57 (0.35)	0.07 (0.36)	0.06 (0.02)	0.03 (0.01)
General skill	0.14 (0.35)	0.44 (0.43)	0.38 (0.57)	0.04 (0.03)	0.04 (0.01)
Specific skill	0.45 (0.50)	-0.48 (0.39)	-0.91 (0.38)	0.03 (0.02)	0.04 (0.01)
Father skilled	0.38 (0.49)	-0.27 (0.35)	-0.13 (0.37)	-0.05 (0.02)	-0.01 (0.01)
Real earnings in district of Birth	4.25 (0.99)	0.43 (0.78)	0.02 (0.17)	0.11 (0.09)	-0.07 (0.05)
Age at time of migration	25.3 (7.6)	-0.03 (0.02)	-0.03 (0.03)	-0.35 (0.13)	-0.14 (0.05)
Married	0.94 (0.24)	0.43 (0.78)	0.83 (0.51)	0.08 (0.04)	0.004 (0.02)
Constant1		1.24 (1.13)	-2.54 (1.15)	0.81 (0.67)	1.01 (0.03)
Constant2		3.20 (1.15)	-0.13 (1.18)		
N		136	153	138	138
R ²		0.06	0.04	0.11	0.12
Test of significance		15.9	10.6		

Source: Results of estimation of ordered probit models (social mobility) and quantile regression (growth in earnings).

Note: Real earnings are measured in 100 Marks and the coefficient on age at migration has been multiplied by 100. The test of significance is distributed χ^2 with seven degrees of freedom.

The simple model of economic advancement is much better at explaining the growth of real income. In analysis focusing on the 25th and the 75th percentiles, a stable career path enhanced economic advancement. Particularly for workers with less rapid income growth, stability could increase the rate of growth by about seven percent. Both general and specific skills contribute notably to the growth in income, particularly for the upper percentile. Migrants who made the move to

¹⁷ We also tested whether a change in occupation after arrival in Munich had a significant affect on the growth of income. It did not.

Munich at 18 instead of 38 experienced growth in income that was eight percent higher (for the lower percentile). Marital status had the predicted positive impact, particularly for the growth in income of workers in the lower percentile.

A simple illustration assists the interpretation of these results. The first example involves a migrant to Munich at age 18 from the prosperous district of Dachau a short distance from Munich who was the son of a farmer, and who had acquired skills as a fitter in his home town. If he married and then followed a stable career path after migrating to Munich, he would have achieved annual income growth of about one percent (using the results for the 25th percentile). At the other extreme, consider the case of a migrant from the economically underdeveloped region of Regen in the Bavarian forest located about 150 kilometres northeast of Munich who moved to Munich at age 30. If he was also married and the son of a farmer but was unskilled and had not been able to follow a stable career path, his income would have risen only 0.8 percent per year. Over 20 years, the difference would imply an income differential of five or six percent.

In a period of rapid economic growth and generally rising incomes, most migrants to Munich could expect improvements in their economic well-being. Workers who made the move to the city early in their working lives, who acquired general or occupational-specific skills, and who decided to remain on the job rather than quit could in the end achieve significant advancement in their careers.

Conclusion

The economics of career formation suggests that any sequence of training and employment that leads to the accumulation of skills and maximizes lifetime utility constitutes a career. Using this functional definition of a career, this study has identified three different career paths among the workers whose working lives are captured in the EBA collection of the Munich City Archive. Despite displaying high rates of job-to-job mobility with average job tenures under a year, many workers apparently settled down into a career in a particular industry.

Statistical examination of the work histories addressed the question of whether job moves revealed evidence of on-the-job learning and whether a stable career path improved social or economic mobility. The evidence of on-the-job learning was unmistakable. Workers who had acquired industry-specific skills were much less likely to quit than workers without those skills. The evidence on social and economic mobility suggested caution in equating social with economic mobility during a period such as the late nineteenth century when the transition from country to city and agricultural to non-agricultural employment dominated the working lives of so many people. Workers showing a *downward* movement in an occupational ranking could nonetheless realize significant *gains* in income. A stable career path significantly improved prospects for income growth, even when prior skill levels and age are appropriately accounted for.

The evidence from the EBA collection suggests that a broader perspective on careers could enhance our understanding of the transition that most western European societies experienced during the one-half century or so before World

War I. It also suggests that the high turnover and restlessness of the urban worker before World War I could be profitably understood as a strategy to take the most advantage of the opportunities presented by rapidly changing, dynamic urban economies.

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