

Job Stability among Migrants to Munich before 1910

This paper uses a new source, the extracts from health insurance records found in the Munich *Einbürgerungsakten* to examine the job-to-job mobility of workers in a wide range of occupations and industries from about 1900 to 1914. Analysis of data quality suggests that it can offer important insights into the length of job tenures in the Munich labor market. Hazard function analysis implies that most variation in job tenures resulted from differences across industry and not across age and familial status. The results suggest that relatively short job tenures characterized the pre-1914 Munich labor market.

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Introduction

From the late nineteenth century to the last third of the twentieth century, the working lives of blue collar individuals underwent a significant transformation. An overarching theme of this transformation is the dramatic reduction in the instability (and uncertainty) that marked the working life of the nineteenth century that is familiar to all social and economic historians. Private and state-sponsored insurance dramatically reduced the loss of income because of illness, disability, or involuntary unemployment. Labor legislation and unionization substantially increased the protection of employment and established a wide range of rights for workers that did not exist before 1900. One important feature of these changes is the transformation of the typical blue collar worker's life from a series of jobs of relatively short duration (two or three years on average) to one of a much smaller number of jobs of much longer duration. Table 1 offers one estimate of the magnitude of these changes over the lifecycle. It compares actual job histories of British workers during the 1980s with projected job histories of German workers from several industries during the late 19th century at various ages over the course of the working life. Workers in the United Kingdom in the 1990s "settled down" to a life of longer jobs (accumulating an average of perhaps 8 to 9 over the course of a working lifetime). Workers in cotton textiles, metalworking, and machine-making accumulated from 14 to well over 40 jobs over the working life before 1914. Perhaps most notable is the high mobility for workers in the prime working years of the 30s and 40s, when most would be expected to settle down to raising a family and establishing ties with the community.¹

Historians have shown a recent interest in investigating historical labor market structures and

¹The sample included three cotton textile firms, the Mannesmann pipe factory, Thyssen steel, a tin factory, the Gutehoffnungshütte bridge works, and the Krauss locomotive factory in Munich. Observations for workers in their 50s were not generally available, so that the estimates in Table 1 most likely understate the degree of mobility.

attempting to identify when the shift to job stability took place. Most historical accounts describe the progression as one from a high-turnover, unruly labor force to one that had acquired discipline and stability. Although the sources for early factory labor differed between the United States, Europe, and Japan, the accounts of this process are quite similar (Pollard [1965], Lee [1978], Borscheid [1978: 372-379], and Field [1978]). Detailed studies of industries at the outset of industrialization point to common difficulties with high rates of fluctuation. Manchester fine spinners faced turnover rates of as much as 100 percent ca. 1800, while the machine-making firm of Koechlin and Cie. in Mulhouse contended with rates that averaged 75 percent during the 1820s and 1830s. Typically one-half of the newly-hired (primarily female) textile workers in Japanese mills at the turn of the century had left employment after six months (Saxonhouse [1976 :102-104]).

Although the problem of an unstable labor force has received the most attention in the literature on early industrialization, the issue is central to understanding the subsequent development of labor markets in the industrialized west. This question has received substantial attention in the American labor literature. Jacoby [1985] and Jacoby and Sharma [1992] argue that only with the onset of widespread unionization in the United States during the interwar period (after 1918) did the labor force acquire the degree of stability that is now common throughout western Europe and the United States. They argue that the American labor market prior to 1914 was characterized by a large sea of high turnover jobs, with small islands of stability in more highly-skilled (and often unionized) fields such as meat packing, printing, and rail transportation. Firms producing mass-produced products for large national markets were also more likely to adopt stable jobs for skilled workers as a response to relative skill scarcity. Job ladders replaced the reliance on “horizontal” labor markets with internal

“vertical” labor markets.² This perspective has been subject to a critique by Carter and Savoca[1990]. They argue on the basis of statistical analysis of a survey of San Francisco workers in 1892 that even in the late nineteenth century, long-term employment relationships of ten or twenty years were widespread.

The historical literature of the second largest industrial economy of the period, Germany, offers an important comparison with the United States. It, too, asserts that the 19th century labor force was divided into two groups: a small, stable group of workers and a highly mobile mass of the proletariat, which was labeled the “quicksand” in contemporary discussions. Most historians of the *Kaiserreich* argue that the instability of the period exerted costs on both the working classes and employers. Langewiesche and Schönhoven[1981] argue that the uncertainty of employment relationships drove workers to “fluctuation between different occupations and different social zones.” The consequences for developing working class organizations were negative. Nipperdey[1990: 295] maintains, for example, that the high rates of job mobility limited the integration of the working class into new surroundings, since a change in employer frequently accompanied moves to a new town or neighborhood. The absence of an integrated working class also limited the upward mobility of the worker. Kocka[1990: 434-435] argues further from the example of the steel mills that as a result of management strategies designed to fragment the work force, the high rates of fluctuation resulted in a “world of work [that] was fragmented... impenetrable and continually in flux.”³

While most historians argue that labor force instability undermined the well-being of the

²See Sundstrom[1988] for an argument that internal job ladders (and presumably, greater stability) were present in American firms by 1913.

³See also the survey of the labor literature presented by Langewiesche[1987: 98-99], who emphasizes the high rates of geographic mobility in comparison with present-day Germany and the implications for union formation.

working classes and imposed additional costs on employers, a minority perspective argues for a more optimistic outlook. Similar to discussions of American labor markets, Lee[1978:461] argues that the German labor force was divided into two groups of migrating workers and stable workers. As a characteristic of younger workers, “turnover served as a substitute for formal career guidance” (Lee[1978:461]). By older ages and particularly after marriage, workers acquired much greater stability. Langewiesche and Lenger’s [1987: 96-99] survey of the related literature on geographic mobility draws similar conclusions. Those moving in and out of German cities were more often than not younger, single individuals. Families were much more stable. The high rates of in- and out-migration well-known to contemporaries mask the existence of “a fairly stable core of more permanent residents.”

Turnover and Job Stability in Comparative Perspective: Germany and the United States before 1914

By 1900, the causes of high turnover and short job tenures were attracting the attention of the German factory inspectorate and other observers as well.⁴ Although lacking the comprehensive survey that Brissenden and Frankel [1922] used in their study, German studies were able to piece together a consistent view of the extent of turnover and trends in turnover around the turn of the century. Their studies reveal that pre-1914 rates of turnover were high; they also note a trend towards increasing turnover between the 1890s and World War I. Ehrenberg [1911: 449-452] and Zumdick[1990: 304] find departures of employees of steel firms in the Ruhr, the Saarland, and Luxemburg rose as a share of the total number employed from 23 to 35 percent in the early 1890s to a

⁴See Jacoby [1985], Carter and Savoca [1990], and Jacoby and Sharma [1992] for a discussion of American evidence from before World War I and the 1970s. Schlichter [1919] and Brissenden and Frankel [1922] examine turnover in the United States, particularly under the conditions of the tight labor forces of World War I. Ehrenberg [1911], Bernays [1908], Syrup [1912], Heiß [1910], and a number of other writers for the "Association for Social Policy" examined the problem of turnover in the context of a wide-ranging study of "Selection and Adaptation" among factory labor forces.

range of 33 to 70 percent by the first decade of the twentieth century. Evidence of similar increases is available from the Ruhr coal industry, where the share of departures rose from 36 to 50 percent in 1896 to 53 to 67 percent by 1908. Data from cotton textile firms in Württemberg and the Rhineland and machine-makers in Augsburg, Nuremberg, and Esslingen yield similar results. At the Württemberg firm, peak rates rose from 20 percent up to 1900 to 25 to 38 percent shortly before World War I, with even higher rates for the Rhineland of up to 47 percent.⁵ Overall, the evidence is strong that turnover before 1914 may have exceeded fifty percent in significant sectors of the economy.

Rates of turnover may reflect a large turnover among a small number of jobs or moderate turnover among all workers. As Carter and Savoca[1990] and Jacoby and Sharma[1992] note, two more satisfactory measures of workforce stability are the distribution of completed spells of employment for a particular period or the distribution of completed spells at a point of time. Since the former measure weights each spell equally, no matter how long its length, it is known as the "terminated weighted duration." The latter weights each spell by its length; those employed much longer are much more likely to be observed than those employed for a short period of time. Hence, it is known as the "employment weighted duration." If the firm is in a steady state, data on the distribution of spells in progress (censored spells) offer the approximate distribution of one-half the length of completed spells.⁶ Sources from Germany frequently are available for both measures, since by the mid-1880s reporting requirements for the social insurance system prompted firms to maintain detailed ledgers of workers, including the dates of arrival and departure from the firm. Personnel records permit calculation of both rates. Table 2 offers roughly comparable data on the distribution of

⁵See Bernays [1908: 38-39], *Arbeiterverzeichnisse* (Registers of Workers) of the Süddeutschbaumwollindustrie, Rupieper [1982: Tables 18 and 20] and Schomerus [1977: 166].

⁶See Akerlof and Main [1981] for a discussion of the distinction and Jacoby and Sharma [1992] for an interpretation of the usefulness of each in historical contexts.

jobs for Silesian metal products and chemical industries and three south German cotton textile firms. The table offers information from more comprehensive surveys for the United States.. A comparison of the data from both countries hints at moderately higher rates of persistence for the German firms relative to their American counterparts, although neither sample can be considered to be truly representative.⁷ The first column for each industry includes the distribution of all exiting the industry during the year or period under observation, while the second includes the distribution of "censored" spells. The distributions reflect conditions common to both the chemical and metal products industries. With a reputation for difficult working conditions, it is not surprising that the chemical industry in both countries experienced high rates of turnover(Syrup [1912: 269]). The German industry was most likely a bit more successful at holding on to workers; one quarter of interrupted spells were of over five years, compared to one-tenth in the United States. The metal products industry lies between the high turnover of the chemical industry and the lower turnover of the textile industry, and the distributions are similar in both countries. The data from the Duisburg steel mill and Munich machine-maker Krauss suggest that the average skills of workers may have lengthened tenures. Zumdick[1990]'s discussion emphasizes the generally low level of formal skills throughout the Phoenix works, while Neumeier[1992]'s evidence suggests that skilled workers made up about two-thirds of his sample of Krauss workers. Although the turnover rates in steel approach those in metal working and chemicals, the Munich Machine-Maker workers displayed much longer job tenures. Nonetheless, their tenures were still shorter than those in the cotton textile industry, which had only a minority of skilled workers. Of the average of sixteen industries--and 31,000 workers--in the Silesian survey, the

⁷Even in the early twentieth century, Silesia was considered to be relatively backward in comparison to Germany's western industrial heartland, Rhineland and Westphalia. The data for comparable industries--particularly the large rolling mills and ironworks--suggest that Silesia's workforce had about the same degree of stability as at Krupp in Essen and in the Saarland.

south German textile firm used for Table 2 would rank at the top in terms of the share of the labor force— one-quarter to one-third— with a job tenure of at least ten years. Indeed, these firms approached the forty percent of the highly stable labor force at the Alamance Mill in North Carolina.

All told, the evidence from the German-American comparisons suggest that job tenures, whether measured by the completed spells or censored spells, were considerably shorter than the estimates developed by Carter and Savoca[1990]. The time series evidence on turnover suggests as well that during the years before the First World War, jobs may have been getting shorter. Unfortunately, the summary evidence does not allow us to follow the careers of individuals. It may well have been the case that for the individual, employment in the industries that are included in Table 2 may have been part of a pattern of seasonal or short-term employment in the factory, which would give way to a longer-term job in other sectors for which such detailed information is not available.

Explaining Short Jobs

Historians offer two kinds of explanations for the short jobs of the period before 1914: factors stemming from the characteristics of workers themselves (“supply-side” considerations in the terms of economics) and the motivation of firms and the technologies that they used (“demand-side” considerations). Langewiesche and Lenger[1987] stress, for example, that the shorter jobs and higher mobility reflected primarily factors associated with the process of migration. They note the high job-to-job mobility in Germany corresponded to high geographic mobility, particularly of younger workers. Figure 1, for example, illustrates the close correspondence between new hires at the *Bochumer Verein* and *Krupp* steel mills and the rate of in-migration into the Ruhr cities of Bochum and Essen in the decades before World War I. The peak in new employment at both firms corresponds to a peak in new registrations within the cities where these two firms were located, Bochum and Essen. As the migrants (mostly from the country) matured, married, and began to raise families, they also exhibited

greater stability in their work lives. Costs of moving alone would have made job-switching increasingly expensive as family sizes grew.

This perspective is also consistent with formal economic models of the process by which workers form longer-term commitments to jobs. Schettkat[1996:15-16], Schasse[1991, ch. 2] and OECD[1993: 134-139] offer helpful introductions to these models. The models stress the importance role that inadequate information on both sides of the contractual relationship plays in how long that relationship will last. They also stress the costliness to an employee of *searching* for a new job that may provide a better match in terms of conditions or pay. The *worker* begins any particular job with limited information about conditions of work, his or her potential productivity, and alternatives that are available elsewhere in the labor market. As a worker matures and gains more information about the labor market and his or her own capabilities, the likelihood that a new job will end in a quit diminishes since he or she has most likely found a good match (and the payoff to conducting a search declines). Likewise, the *employer* is only imperfectly informed about the new employee's reliability, ability to work with others, and potential productivity. More time on the job provides the employer with more information about the employee's capabilities. The longer the employee remains on the job, the less likely the employer will find out information that would lead to a firing.

Institutional arrangements today substantially increase the amount of information about the job available to both the employee and the employer prior to hiring actually taking place. Unions can provide information about conditions on the job and mitigate the problems that could have earlier led to a quit. Personnel or "human resources" offices are charged with evaluating the qualities of potential employees before they are hired. Certification of skills by prior employers or through the completion of training programs plays an important role in contemporary personnel decisions. Although guilds provided some of this kind of information, their importance for training was substantially diminished

by the end of the 19th century.⁸ Employment bureaus will also attempt to ensure a better match for both the employer and employee. Despite changes in the technology and institutions that provide information about opportunities in the labor market, the net payoff to a job search as tenure increases may fall more rapidly in the early 21st century than it did in the early 20th. The cost of moving a household, which in the late 19th century included the use of a cart for a day and the time required to bundle up a few possessions, are today much more significant and must be amortized over a longer period of time.⁹

The time-series correlation of rates of migration and turnover before the war suggests that there was some relationship between the two. The importance of migration to the industrial labor force in pre-1914 Germany also suggests that the shorter jobs of the period of transition to an industrial economy may simply have reflected the adjustment of the labor force, since it was preceded by much lower rates of migration before the 1870s and followed by much lower rates after 1914 (See also the data for Krupp in Figure 1 after 1921).¹⁰ The recent work of Whatley and Sedo[1999] suggests that changes in labor supply in the United States after 1923—the cutoff of immigration—may have prompted a similar decline in worker mobility that is documented in both firm records and statistics of the *Bureau of Labor Statistics*.

An alternative approach to explaining the job-hopping of the pre-1914 labor force and apparent stabilization thereafter would appeal to other developments in the economy. The foremost would be the adoption of new production methods that may have reduced skills required of the labor force and

⁸See Hansen[1999] for a discussion of the development of training programs within the context of the 1897 *Handwerk* law in the German case.

⁹Intra-urban mobility was as high or higher than inter-urban mobility during the late 19th century, as the voluminous evidence from registration records and housing censuses attests.

¹⁰See Langewiesche and Lenger[1987] and Ritter and Tenfelde[1992: 186-195].

required a much larger scale of operation relative to older technologies. By the last prewar occupational census of 1907, one-third of German commercial and industrial workers were employed in firms with over 200 employees. Only about one-fifth were employed in firms with 10 employees or fewer. While recognizing the diversity that characterized individual industries and jobs, Ritter and Tenfelde[1992:344-349] argue that the new technologies were most likely to be employed in large firms. The move into large scale production meant a substitution of the incoherence, strict hierarchy, and anonymity of the large factory for the coherence and personal relationships with the owner of the small shop. The revolution that transformed German industry before the war gave way to another one: the new labor relations of the Weimar Republic, which granted labor unions expanded rights and arguably diminished firm control over wage-setting.

Work Histories from the *Heimatrecht* Records

Legal and political circumstances unique among the member states of the *Kaiserreich* created the conditions for the availability of employee employment histories that are well-suited for studying the work histories of migrants. These histories are available for Munich, which was Germany's third largest city by 1910. They provide coverage for about the last two decades before the outbreak of the war in 1914. The legal rationale for the creation of this unique source also poses questions about its suitability as a source of study of the work experience of migrants.

Upon unification, most other German states had adopted the Prussian practice of tying full rights of citizenship in a town to simple residence(Hirsch and Lindemann [1905]). Bavaria maintained an older practice that was rooted in the efforts of the 1820s to restore the stability of population and restrict claims on poor relief (and earlier concepts of town citizenship). 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 the marriage license

(*Verehlichungszeugnis*). 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 woman received it from the husband), or by applying to town authorities.¹¹ Application procedures adopted in the mid-1860s required, for example, that the applicant had to have lived five years in the town as well as show evidence of being economically independent. Typically, independence implied paying state taxes as well as never requesting poor relief. The application fee for this form of *Heimatrecht* (Article 7) was 80 Marks, about one-tenth of a year's earnings for a day laborer. An alternative procedure dropped the requirement that state taxes must have been paid, and required instead ten years of continuous residency. The 1899 revision to the law lowered the required length of stay to seven years but maintained most other key provisions of the law. Under the alternative procedure (Article 8), the applicant was not required to pay the application fee (*Gesetz*[1899: 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 in the collection *Einbürgerungsakten*(EBA) of the Munich City Archive. A typical application includes about thirteen to sixteen forms, including extracts from the sentencing register and reports from the municipal registration bureau on the length of residence and whether or not the individual was assessed state taxes in the years of his or her 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 1898, 1904, 1906, and 1910 revealed that by 1904, applications for *Heimatrecht* under Article 7 satisfied the legal requirements with certification that they had paid state income or wealth taxes

¹¹The 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 the right (and responsibility) to vote in municipal elections and serve in city government.

during the preceding four years.¹² Those applying under Article 8 (with a waived fee) 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.¹³ As a rough approximation, the data on employment histories is available for about eighty-five percent of the individuals applying for *Heimatrecht* from the early 1900s to after 1910.

The employment histories found in the EBA collection depend primarily upon the records of the insurance funds (*Krankenkassen*). Prior to a change in the law in 1911, which broadened coverage, German federal law required compulsory membership in an insurance fund for all workers between the ages of 16 and 70 whose employment was of a duration of at least one week or more. Managerial employees with incomes above 2,000 Marks were exempted from coverage (Dawson[1912: ch.2]).¹⁴ By 1914, virtually all wage workers were covered by the health insurance system (Nipperdey[1990:347]).

The administration of the health insurance system in Germany offered significant advantages for municipal authorities interested in tracking down employment histories. Virtually all insurance

¹²The records examined were in EBA 1904(1-75), EBA 1906(1-80), and EBA 1908(1855-1786).

¹³Excluding applications from those clearly no longer in the labor 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 as a master (tool maker or hammer smith, for example). The remainder were city employees, employees of the state railway, professionals, white collar workers, and owners of a shop or business (30 percent).

¹⁴Apparently the provision for mandatory coverage did not prevent workers from being covered for shorter employment spells. Of about 3,800 spells in the data set, over 450 were for six days or less.

funds were administered at the local level, either as general local funds (*Ortskrankenkassen*), firm insurance funds (*Betriebskrankenkassen*), guild insurance funds (*Innungskrankenkassen*) for trades granted special status under federal law, or community insurance funds (*Gemeindekrankenkassen*). All insurance was through the employer, except for the community insurance funds, which were designed to offer insurance to those unable to receive insurance elsewhere.¹⁵ Initially organized for various trades and subgroups, the *Ortskrankenkassen* typically insured the bulk of wage workers. A consolidation movement during the early 1900s resulted in elimination of duplication among them. By 1906, three-quarters of the insured workers in Munich were members of the single *Ortskrankenkasse*, and the remainder were scattered among the other three main types of local insurance fund.¹⁶

The primary source of the data on employment is from an extract from the “Workers’ List” maintained by the *Ortskrankenkasse* (see Appendix One). The employer and occasionally the industry is noted along with the period of employment. The collection 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. Signed statements from prior employers were also used to fill in gaps in the employment record. Indeed, any notable gap in insurance coverage was noted with a thick mark in crayon to be investigated further.¹⁷ The data collected for this study included about three hundred workers with a combined total of over 3,000 jobs. For about 1,500 of the jobs, the employer’s name provided sufficient information to link the employee

¹⁵See Dawson[1912: 33-38] and Tennstedt[1983: 315].

¹⁶Statistisches Jahrbuch[1908:250-255].

¹⁷ The attached sheet for Franz Bierlbauer, who worked as a day laborer among other things, for includes his statement that he worked odd jobs during 1905 to 1906 and 1906 to 1907 (at the gaps that are marked in the left hand column of the sheet). The statement includes an oath that he was never unemployed more than 6 to 8 weeks.

to a firm name and industry. The police registration records from the collection PMB (*Polizeimeldebögen*) of the City Archive were then matched with the employment histories to provide detailed information on dates of marriage and births and deaths of children. The estimation enters marital status and the number of children as time-varying covariates.

Assessing the Selectivity of the EBA Health Insurance Source

Unlike Essen or other large cities of the Ruhr, Munich possessed an economy that was highly diversified. Its output ranged from high-quality luxury goods for export to the steam locomotives of two local machine-makers, Krauss and Maffei. In addition, production of beer and other food as well as the garment and shoe trades provided important sources of employment. An important test for the EBA health insurance source is how well it captures this economic diversity.

Clearly both the process of application for *Heimatrecht* and the administration of the law could impart substantial sample selection biases that would diminish the value of inferences about the Munich labor market that are based on the data found in the EBA collection. The project addresses this issue using two strategies. The first approach will use comparable data sources on length of job tenure from firm records. Currently, those available for Krauss-Maffei (a machine-maker) are being processed. The experience from firm records can be compared with the outcome from the individual labor histories and can help the two main weaknesses of the data source: the right censoring of job tenures at eight years and the restriction of the data source to migrants only.

The second approach examines the origins of the source and potential sources of sample selection bias. The likelihood of a wage worker's employment history appearing in the EBA source depended first upon his or her birthplace and subsequent migration history (or the migration history of his parents). Since Munich depended heavily upon in-migration for the growth of its labor force prior to 1914, about *four-fifths* of its adult population aged 16 to 70 in 1900 was born outside of the city

[Imperial Statistical Office[1903]). This was consistent with the experience of most other large German cities. Of course, those born in Munich could move out of the city. Once a migrant established *Heimatrecht* in another community, her or she lost the *Heimatrecht* in Munich. Data from police registration records summarized in Brown, et. al.[1993: 114] suggests that one-third of those born in Munich reaching adulthood(age sixteen or so) left the city, although three-fifths of the outmigrants eventually returned. Of the three-hundred odd workers in the data set examined here, about six percent were such return migrants.

Conditional upon migrant status, the probability of a migrant's work history appearing in the EBA source depended upon both the decision to apply for *Heimatrecht* and the administrative procedures for processing applications. A sample of four hundred police registration records collected for a project on housing conditions in Munich allows a closer look at the determinants of acquiring *Heimatrecht* after the revision of 1899 loosened restrictions on applying.¹⁸ Of the 414 household heads in the sample, seventeen percent had been born in Munich and eight percent had lived in Munich fewer than the seven years required by law. Of the remaining three-quarters, four-fifths had acquired the *Heimatrecht*. Probit analysis of the determinants of who had *Heimatrecht* and who did not found little correlation with the length of stay in Munich and measures of income. A higher income raised the odds with a modest of elasticity of 0.5, but status as a day laborer had an even stronger influence, raising the probability by 0.1.¹⁹ The joint result of the application decision of the migrant and the internal procedures for processing applications suggests that lower income workers were a bit more likely to appear in the health insurance source.

¹⁸The source is described in more detail in Brown[1995].

¹⁹The P^2 test for the joint insignificance of occupations, age, and income was not rejected at a thirty percent level of significance.

Table 3 summarizes the distribution of ages, industry of employment, and income for those in the sample for whom tax data were available. As would be expected, the EBA health insurance record data under-represents the two extremes of the economically active male population: very young and older workers. The source also tends to over sample workers in the processed food and beverage industry (primarily brewing) and construction. Finally, as the look at the EBA records overall suggests, the sample includes workers with slightly lower incomes than the working population at large. What is most encouraging is that the range of incomes covered by bulk of the EBA sample (from 500 to 1,400 marks) covers the average annual earnings of most of the wage-earning population of Munich.²⁰

Estimating the Influences on Job Tenures

Table Four presents the summary data on the distribution of job tenures for the 300 workers in the sample. The data are arranged according to separate job spells (or periods during which the worker was insured). The data are also grouped by two categories of employment: construction and other industries. Comparable data for employees in Silesia and the Krauss Machine Works in Munich are also included. Note that the data imply higher rates of year-to-year fluctuation than are seen in data from factory employment. Despite the concentration of the EBA data on recent migrants, the unconditional distribution for non-construction workers is remarkably close to the distribution for all workers in Silesia. By comparison, the workers in the Neumeier[1992] sample from the Krauss Machine-Making factory averaged longer jobs, although the difference may reflect as much differences in the composition of the labor force as in the underlying distribution of job lengths.

²⁰See the detailed results in "Lohnermittlungen" [1905-1907], which provides an exhaustive survey of earnings by occupation for most of the major industries in Munich. Average incomes tended to peak at 1,300 marks. Median average incomes were between 1,000 and 1,200 marks in machine-making, metal, transport, and woodworking. Median average incomes in trade were between 1,200 and 1,440 marks.

Finally, a comparison of the distribution of job tenures in construction with those reported in an 1898 survey of construction trades in Berlin reveals striking similarities. The Berlin survey estimated that 93.1 to 95.6 percent of jobs were six months or less for masons and “workers”. The percentage neatly brackets the 93.5 percent found in Table 4.²¹

Of course, the data set also allows a look at patterns of jobs over the period of the time the records were maintained. As it turns out, the median period of time for which observations were available was a bit under eight years, but for a quarter of workers over nine years of their working lives were recorded. The median length of time since a worker first moved to Munich was almost ten years; one-quarter had been there for over twelve years, albeit with some interruptions. The median length of a job for all workers was one and one-half years. One-quarter averaged over four years and for another quarter, the average job length was under 6 months.

Table 5 provides a summary of the where the workers in the sample found employment. Only about one-third of the workers specialized in the six sectors that accounted for four-fifths of the jobs. Instead, most worked in at least one or more other sectors. Not surprisingly, with an average job that lasted only three months and a median job that ended in a matter of weeks, construction offered the largest share of the migrants—two-fifths—employment at some time during their stay in Munich. One-third of the workers found employment in the food and beverage industry, even though it accounted for only about one-tenth of jobs. Eleven percent specialized in that industry. Perhaps the other notable feature of Table 5 is the fact that three-month jobs were widespread through Munich’s industry, including in the machine-making sector that has traditionally been associated with high-skilled employment.

Explaining the Length of Jobs

²¹See Statistisches Jahrbuch Berlin[1898: 266].

One straightforward approach to understanding what influenced the pattern of jobs and employment is to use what is known as hazard analysis. This statistical approach was first used to analyze the effectiveness of alternative treatments on the survival of a patient. It views the period of time during which a worker is employed at a job as a series of *conditional* probabilities. For example, provided that the worker has already worked one month on a job at the Augustiner Brewery, influences on the probability of the worker quitting the next day provide some clues about what influenced the overall length of the jobs. In addition, statistical analysis of this kind can chart the average experience for groups of workers over the length of time that they were employed. Known as the *survival function*, it reveals what the probability is for the job to last a given amount of time.

If the probability that job lasts fewer than T months is $F(T)$, then the density function of this probability $f(T)$ divided by the probability that the job lasts longer than T ($1-F(T)$) is the *hazard function*, or $h(T) = f(T)/(1-F(T))$. The function $h(T)dt$ is the likelihood that over the interval dt , the job will end provided it has already lasted T months. Estimation of the (base) hazard function itself provides information on the underlying likelihood of quits as time on the job increases for the average employee in the sample. Further, a number of factors (\mathbf{z}) may be expected to raise or lower the likelihood of a quit regardless of how long the employee has been employed. These influences may include age, marital status, industry, and the other characteristics of the individual or the employment relationship discussed in the historical literature. Hence, the observed hazard function for each individual ($H(T)$) has the form $H(T) = f(\mathbf{z})h(T)$. In this application, $f(\mathbf{z}) = \exp(-\mathbf{z}\beta)$, where β is a vector of coefficients. The hazard function $H(T)$ is estimated using the Cox partial likelihood approach.

This preliminary exploration of the Munich EBA data set focuses three groups of variables that may help us to understand the relationship between migration and short jobs for the 280 workers in the sample for whom complete data on personal characteristics are available. In general, a positive sign

on these variables means that they *increase* the likelihood of a quit and the job ending.

The first group of variables concerns the age, marital status, origins of the worker, and skill level. Growing older, marrying, and adding children to the family would be expected to decrease the likelihood that the worker would quit the current job. In addition, the distance that the worker migrated may also play an important role. Many of the workers migrated more than one hundred kilometers to Munich. Compared to those coming from a greater distance, the local migrants would be more likely better informed about the Munich labor market. Whether or not a skilled worker would be more mobile than an unskilled worker is open to historical discussion. In historical accounts of early industrialization, it is the skilled workers who appear to have the greatest mobility because of their greater sophistication about the labor market and higher demand for their skills. The historical literature for the period after 1900 is a bit more pessimistic when it argues that *lower skilled* workers exhibited higher mobility because of their greater vulnerability on the labor market. Economic models of the job relationship more often argue that if skills and the learning of on-the-job skills are complementary, the skilled worker would be more likely to acquire skills specific to the firm and thus, face a greater cost of leaving.

The second group of variables that may influence the decision to remain on the job would be the conditions on the job and the worker's individual experience in the Munich market. The most important part of the specification was to divide the sample into jobs in construction and jobs elsewhere in the Munich economy. Dummy also variables controlled for the likelihood that employees in the brewing, woodworking, and machine-making industries experienced on average different jobs than the rest of labor market. The size of the firm, to the extent that it could be gleaned from published sources, was included as well. The historical literature would suggest that larger firms would be most likely to offer shorter-term jobs. The empirical specification captured the experience of the

individual's *history* in the labor market in three ways. First, the detailed information about the employers permitted inclusion of a variable that measured the number of jobs with the current employer. More information on the second or third time around may have led to a better match and a longer job. Second, a dummy variable was entered for the first job in Munich, which presumably reflected the expectations of the worker prior to actually entering the labor market. Finally, the Cox partial likelihood approach permits flexible specification of the hazard function. The approach to statistical analysis adopted here stratified the sample of jobs according to the length of time the worker had already resided in Munich at the beginning of the job. The four periods chosen were under 2, 2 to 4, 4 to 8, and over 8 years. If learning and adaptation to the new conditions was important for the migrant, we would expect that the likelihood a job ended for a given period of time of employment would *decline* the longer the worker lived in Munich and acquired experience in the labor market. Or, in other words, the survival function would be likely to shift in the longer the stay in the city.

The last part of the specification included seasonal dummy variables to reflect the importance of seasonal change on the decision to stay on the job. Dummy variables for the season in which the job began were included; they were limited to spring and summer. In addition, changes in the overall condition of demand or supply on the labor market would shift the set of opportunities available to the worker. An increase in employment (here, measured by the quarterly percentage change in the number of enrollees for the local insurance fund, or *Otskrankenkasse*) during the quarter the job began, should raise the likelihood of a quit.

The second column of Table 6 details the variables used in each specification and the means of those variables. Most of the workers in the sample were born comparatively far (100 km.) from Munich. Two-thirds were married at the beginning of a job and the average age was about 31 years (those in construction were slightly older). About one-ninth of the jobs in the sample were held by the

worker for the entire period for which records are available. Finally, almost three-fifths of jobs were started in the spring and summer months.

Results of the Statistical Analysis

The final two columns of Table 6 provide the results of the Cox partial likelihood estimation. For ease in interpreting the coefficients, recall that they reflect how much the (quit) hazard (chance of quitting at that time) is shifted up or down. The percentage impact for a particular change in a variable, z , is $\exp(\beta z)$, where the coefficient β is found in Table 6. For example, a worker born 150 kilometers from Munich would be 12 percent more likely to quit than would a worker born in Munich, no matter where he worked. A skilled worker was modestly less likely to quit (18 percent) than an unskilled or semi-skilled worker. This effect was negligible in construction. Marriage lowered the quit probability a modest amount (about 9 percent) for both groups of workers. Perhaps most surprising, the worker was about one-half to two-thirds as likely to quit the first job in Munich as any subsequent jobs. Those hired in the summer were about one-quarter less likely to quit than those hired during other seasons.

Perhaps the most important influence on employment for workers outside of construction was the size of the firm. Contrary to the expectations of the historical literature, the size of the firm was strongly negatively related to the stability of the job. A worker moving from a modestly-sized firm such as the Freundlich Brothers lumber company (about 10 to 50 employees) to the Ballin Furniture factory, which employed 325, would experience about a one-fifth reduction in the likelihood of quitting. Although this result awaits a more comprehensive effort at identifying the exact size of other firms, it does suggest a major modification of the traditional historical accounts.

The final path for evaluating these provisional results is to compare the effect of living in Munich and gaining experience with the Munich labor market on the likelihood of how long an

individual job would last. The workers in the Munich sample had lived a median of almost eight years in the city; one quarter had lived there more than nine years. Over this long period of time, we would expect to see a pattern of acculturation and adaptation that figures prominently in many explanations for the high mobility of the period. One approach to assessing the affect of the length of stay in Munich is to examine the *Survival Functions* for workers employed in construction and outside of construction. The functions map out the probability that a typical job for an average worker (here, it is the worker with the average characteristics in Table 6 with the exception that he is unmarried and unskilled) would last varying lengths of time. The functions are graphed for the four different periods of stay in Munich noted earlier. The functions for workers living two or fewer years and living more than 8 years in Munich are graphed with lines to highlight the difference between them. Note that the function for workers outside of construction measures the length of a job in years. The function for workers in construction measures the length of a job in months.

The graphs present striking evidence that high mobility was not simply a function of the mass migration into the city. Consider the survival function for workers outside of construction. When they first arrived in Munich, workers had a 50 percent probability that a given job would last about one-half year. The probability that the job would continue on to one year was almost 25 percent. As the worker gained experience in the Munich job market, the expected duration of a job actually fell. For those staying in Munich longer than eight years, the probability that a given job would last one-half year had fallen to about 30 percent. The probability that it would last one year was now about 15 percent. These differences are born out as well in the results for the construction industry.²² We will want to test

²²The long-rank test applied to the estimated survival functions for the first and fourth groups rejected the hypothesis that they were the same functions quite handily. The Chi-Squared test statistics were 2209 with 295 degrees of freedom for jobs outside of construction and 2392 with 316 degrees of freedom for jobs in construction.

whether unmeasured macroeconomic conditions could be contributing to this result. If it stands, it offers an important revision to our understanding of prewar German labor markets and points even more strongly to the changes that took place after the First World War.

Conclusions

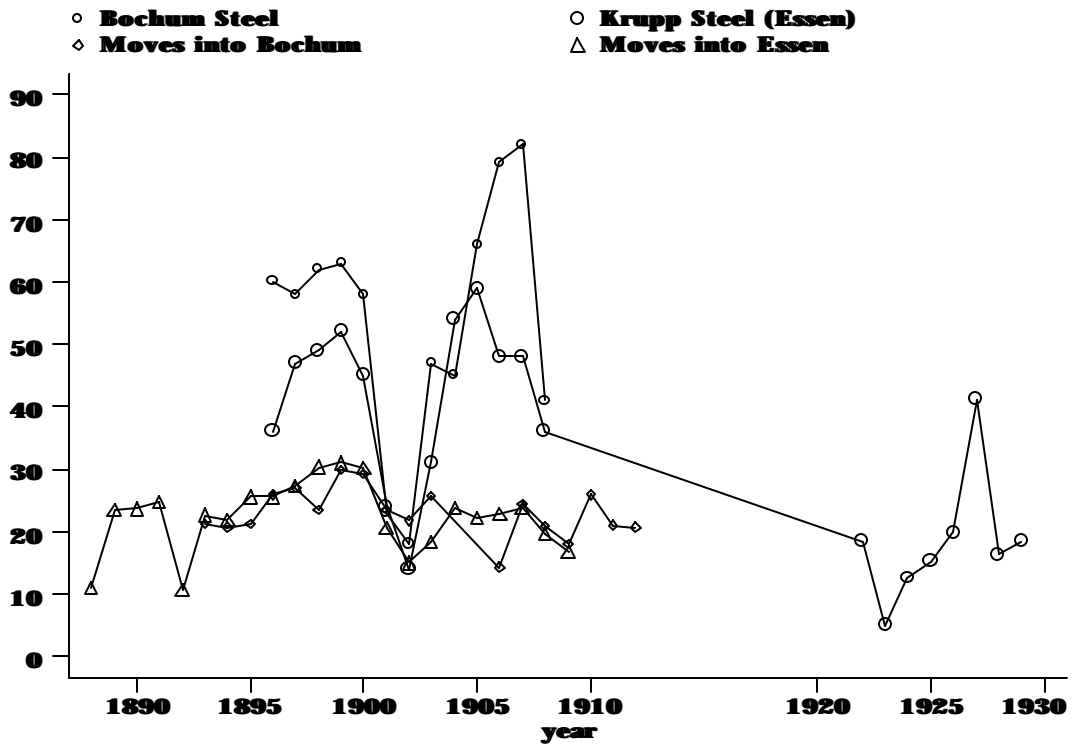
This first look at a valuable new source of information on employment histories—the EBA records—suggests that the source can offer promising insights into the functioning of the labor market in the third-largest city of the German *Kaiserreich*. Two key conclusions about the job and career experiences of these migrants emerge from our examination of this source.

First, the results buttress our conclusions from earlier work using samples drawn from firm records (Brown and Neumeier [2001]). For a wide range of workers, jobs before the First World War were short. A minority of workers developed specializations within particular branches of industry or commerce, but most workers moved across industries. Surprisingly, jobs in larger, most likely more technologically advanced firms were likely to last longer than jobs in smaller firms. The results from studies of surviving firm records may actually *understate* the degree of mobility in the German labor force before 1914. The median predicted job for migrants to Munich during their first eight or years would have been about one-half year during their first four years in the city.

The second important result is that as they acquired familiarity with the city, migrants into Munich became even more mobile. We need to do further research to ensure that this result holds up, but if it does, it suggests that a focus on the life cycle of the new migrants as an explanation for short-term jobs before World War I has become less convincing. This result makes the post-1920 decline in the length of jobs and the beginning of more stability in the workplace even more intriguing. To confront this issue will require a careful look at what evidence there is that brackets both periods and a closer examination of the changes in German labor market institutions brought about by the Weimar

Republic.

Figure 1 Inter-City Mobility and New Hires as a Share of the Labor Force



Sources: Krupp Archive WA 41/6-3; Ehrenberg[1911]; and *Statistisches Jahrbuch deutscher Städte*.

Notes: The vertical axis is new annual registrants in the city per 1000 city residents (*Anmeldungen*) or new hires at the respective firms per 100 currently employed.

Figure 2: The Survival Function for Workers in Construction

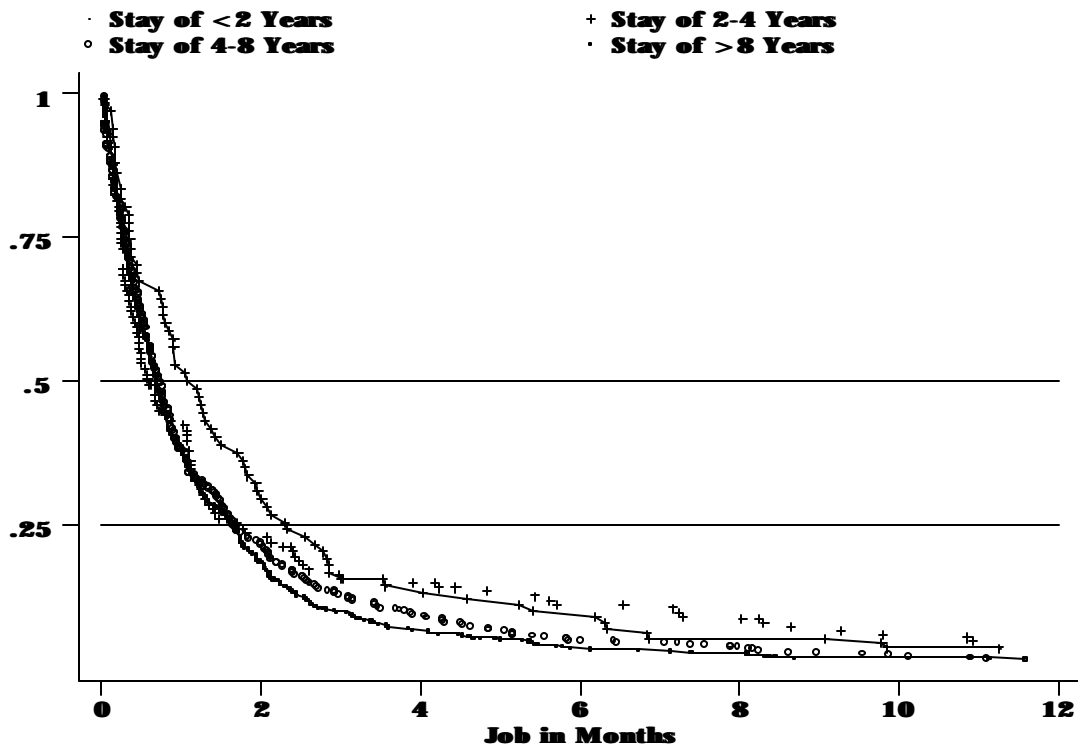
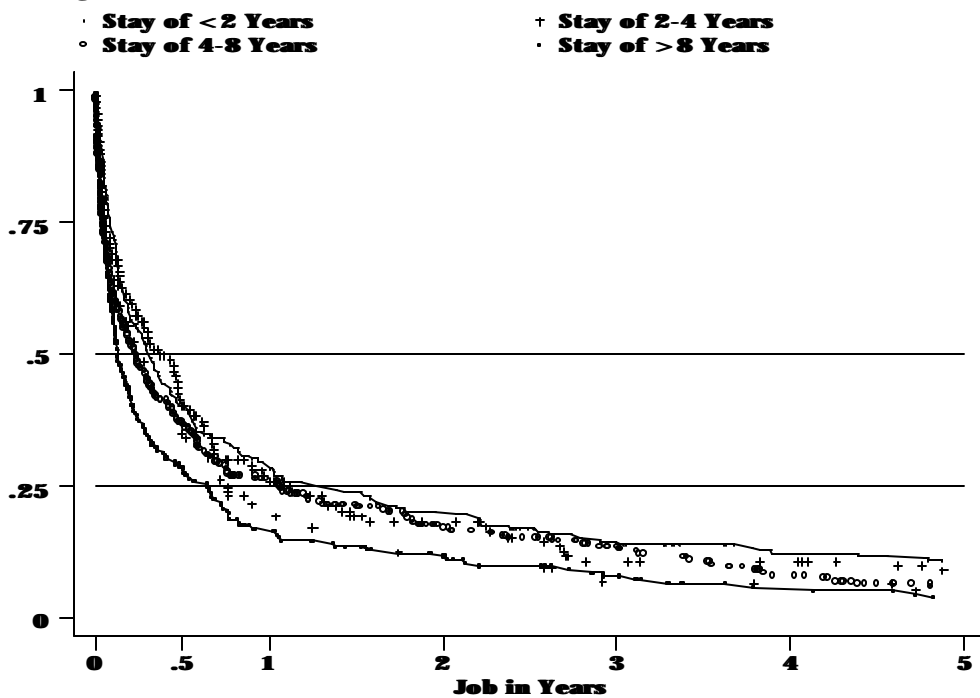


Figure 3: The Survival Function for Workers Outside of Construction



Notes: The vertical axis provides the probability that a given job would last the amount of time specified along the horizontal axis.

Source: Estimation of Cox partial likelihood models of job duration stratified by the length of stay in Munich.

Table 1
 Job Histories Over the Lifecycle for the Late 20th and Late 19th Centuries
 (New Jobs Per Period)

Age Group	United Kingdom: 1993	Germany: late 19 th Century					
		Low-Skilled Migrant			High-Skilled Local		
		Cotton (Rural)	Metal	Machine-Making	Cotton (Rural)	Metal	Machine-Making
12-15	0	1.6	2.2	0	0.8	1.6	0
16-19	2.2	3.4	5.4	2.9	2.2	4.2	3.7
20-29	2.4	6.6	16	14.4	3.2	12.4	17.2
30-39	1.6	8.8	15	12.8	4.4	12	15.2
40-49	1.4	5.2	14	12.4	2.4	10.4	14.8
50-59	0.8	2.6	0	0	1.3	0	0
>60	0.3	0	0	0	0	0	0
Total	8.44	28.2	52.6	42.5	14.3	40.6	50.9
Average length (in years)	5.8	1.8	0.8	2.0	2.9	0.9	1.0

Source: Brown and Neumeier[2001].

Notes: The table presents the new jobs that the worker took on during each age period. For example, during their twenties, workers in metal-working started from 12 to 16 new jobs.

Table 2
 Distribution of the Length of Jobs by Industry in Germany and the United States
 (In percent of all jobs)

Job Length (In Years)	Germany: 1900-1914						United States: 1914/1915					
	Chemicals Silesia		Metal Products Silesia		Cotton Textiles	Chemicals		Cotton Textiles		Metal Products		
	Exits	Censor	Exits	Censor	Exits	Exits	Censor	Exits	Censor	Exits	Censor	
< 1	84	33	76	30	64	94	64	15	8	81	33	
1-2	3	20	11	15	18	3	13		19	9	8	
2-3	5	13	4	9	9	1	5	85		4	12	
< 3	93	66	91	54	91	98	82		27	94	53	
3-5	3	10	5	12	8	1	8		32	4	15	
> 5	3	24	4	34	1	1	10		41	2	32	

Notes: Censor refers to the spells of employment underway, typically resulting from a survey of workers. Exit refers to completed spells of employment of exiting workers.

Sources: McHugh[1982], Brissenden and Frankel[1922] for the United States and Syrup[1912] for chemicals and metal products,

Table 3
Comparison of EBA Sample with Data for Munich

Characteristic	EBA Sample	All Employees in Munich
Age Distribution on December 1, 1907 (Males only)		
< 20	0.4	4.5
20-25	13.9	16.9
25-30	23.5	12.3
30-40	46.2	28.5
40-50	13.0	18.3
50-60	1.7	11.1
Employment Distribution: Dec. 1, 1907 (Males only)		
Processed food and beverage	20.5	6.7
Construction	17.7	9.2
Clothing and leather	5.6	6.1
Metal and machine-making	9.9	11.1
Trade, restaurants, hotel	8.5	14.0
Wood, chemicals, paper	5.7	5.0
Printing	6.4	2.5
Other	25.7	45.4
Distribution of Estimated Income from Income Tax Receipts		
< 500 marks annual income	0.5	17.6
500-750	15.2	20.1
750-900	21.4	15.4
900-1,050	32.1	12.9
Lower incomes (< 1,050)	68.7	66.0[55.4] ^a
1,050-1,400	22.0	14.9[19.5] ^a
> 1,400	9.3	11.1[25.1] ^a

^aFor cities and towns instead of all of Bavaria.

Sources: EBA sample; "Berufs- und Gewerbezahlug"[1909] for distribution of economically active male population by age and industry; and *Statistisches Jahrbuch*[1905].

Notes: The data on age and employment distributions are from the occupational census of 1907. Data

on the distribution of income from tax payment data do not give a true picture of the overall income distribution because of various exemptions granted low-income workers and the exclusion of owners of businesses, who were subject to a separate business tax.

Table 4
 Distribution of the Length of Jobs in the EBA Sample and Other Sources
 (in percent of all jobs)

Length of the Job	EBA Sample		Machine-Making	All Silesian Workers
	Construction	Non-Construction		
< 1 month	53.4	24.2	5.6	18.8
1-3 months	26.1	20.6	10.1	23.5
3-6 months	9.2	14.1	13.2	19.5
6-12 months	5.5	17.7	16.4	14.5
< 1 year	94.2	76.6	45.3	76.3
1-2 years	1.6	12.5	22.0	10.2
2-5 years	1.3	8.2	21.4	8.1
> 5 years	2.7	7.6	13.7	5.4

Notes: The spell lengths are for individual spells with employers. Censored spells are assumed to be equal to one-half their completed value.

Source: EBA sample; Neumeier[1992: 576-577]; and Syrup[1912].

Table 5
The Industrial Distribution of Jobs Among Migrants to Munich

Sector	Percent of Jobs	Median Length of a Job (in months)	Average Length of a Job (in months)	Percent of Migrants with at least one job in the sector	Percent of Migrants with jobs only in the sector
Construction	48.8	0.8	3	45.4	7.1
Food and Beverage	9.9	6.0	25	32.8	10.8
Woodworking	9.9	2.8	11	18.0	6.4
Metalworking	4.6	2.9	20	16.5	3.4
Trade	4.4	2.8	14	21.2	1.4
Machine-making	3.8	3.6	18	16.1	3.0
N	2,395			282	282

Source: EBA data set.

Table 6
Estimated Hazard Functions for Munich Workers

Independent Variable	Mean	Industries Other than Construction	Construction Industry
Brewing	0.079	-0.573 (2.33)	
Woodworking	0.17	0.131 (0.78)	
Machine-making	0.07	0,229 (1.37)	
Workers per business	143	-0.671 (4.50)	
Skilled worker	0.44	-0.197 (1.73)	-0.095 (0.72)
Distance of Birthplace in 100 km. from Munich	110	0.078 (1.04)	0.073 (0.95)
Married	0.64	-0.080 (0.76)	-0.088 (0.78)
Age	30.7	0.011 (0.21)	-0.061 (1.46)
Age Squared x 10 ⁻²		0.008 (0.12)	0.122 (2.28)
First job in Munich	0.12	-0.653 (4.58)	-0.723 (2.54)
Number of jobs with employer	1.19	0.058 (1.29)	0.086 (2.30)
Hired in the spring	0.31	-0.109 (1.17)	-0.041 (0.44)
Hired in the summer	0.27	-0.264 (2.65)	-0.27 (2.54)
Percentage change in employment in quarter hired	0.62	0.013 (0.68)	0.015 (0.73)
N of jobs		721	667
Number of completed jobs		659	609
P ² (degrees of freedom)		94.4(14)	70.4(10)

Source: Results of hazard function estimation using the Cox partial likelihood approach. The sample was stratified according to the length of time the migrant lived in Munich. Asymptotic *t*-statistics are in parentheses.

References

- Abraham, Katharine and Henry S. Farber[1987]. "Job Duration and Earnings." *American Economic Review* 77(3): 2787-297.
- Akerlof, George and Brian Main. "An Experience-Weighted Measure of Employment and Unemployment Durations." *American Economic Review* 72(4): 1003-1011.
- Becker, Gary[1975]. *Human Capital*, 2nd. Edition. New York.
- Bernays, Marie[1910]. *Auslese und Anpassung der Arbeiterschaft der geschlossenen Großindustrie*. Leipzig.
- "Berufs- und Gewerbe- Zählung"[1909]. *Mitteilungen des Statistischen Amts der Stadt München* **22**.
- Borscheid, Peter[1978]. *Textilarbeiterschaft in der Industrialisierung*. Stuttgart.
- Brissenden, Paul and Emil J. Frankel[1922]. *Labor Turnover in Industry*. New York.
- Brown, John C.[1995]. "Private Markets for Public Health: Consumer Choice and Mortality Decline" (mimeo).
- Brown, John C., Timothy W. Guinnane, and Marion Lupprian[1993]. "The Munich *Polizeimeldebögen* as a Source for Quantitative History". *Historical Methods* **26**: 101-124.
- Brown, John C. and Gerhard Neumeier[2001]. "Job Tenure and Labor Market Dynamics during High Industrialization: The Case of Germany before World War ." *European Review of Economic History* 5(August, 2001): 189-218.
- Carter, Susan and Elizabeth Savoca[1990]. "Labor Mobility and Lengthy Jobs in Nineteenth-Century America." *Journal of Economic History* 50(1): 1-16.
- Dawson, William Harbut[1912]. *Social Insurance in Germany: 1883-1911, Its History, Operation and Results*. London.
- Ehrenberg, Richard[1911]. "Schwäche und Stärkung neuzeitlicher Arbeitsgemeinschaften." *Archiv für exakte Wirtschaftsforschung* 3(4): 410-558.
- Emsbach, Karl[1982]. *Die Soziale Betriebsverfassung der rheinischen Baumwollindustrie im 19. Jahrhundert*. Bonn.
- Gesetz über Heimat, Verehlichung und Aufenthalt (v. 30. Juli 1899)* [1899]. Munich.
- Heckman, James and Burton Singer [1984]. "A Method for Minimizing the Impact of Distributional Assumptions in Econometric Models for Duration Data." *Econometrica* 52(2): 271-320.
- Heiß, Clemens[1908]. *Auslese und Anpassung der Arbeiter in der Berliner Feinmechanik*. Berlin.
- Hirsch, Paul and Hugo Lindemann[1905]. *Das Kommunale Wahlrecht*. Berlin.

- Huberman, Michael[1987]. "The economic origins of paternalism: Lancashire cotton spinning in the first half of the nineteenth century." *Social History* 12:177-192.
- Jacoby, Sanford M[1985]. *Employing Bureaucracy: Managers, Unions, and the Transformation of Work in American Industry, 1900-1945*. New York.
- Jacoby, Sanford M. and Sunil Sharma[1992]. "Employment Duration and Industrial Labor Mobility in the United States, 1880-1980." *Journal of Economic History* 52(1): 161-180.
- Kahn, Julius [1913]. *Münchens Großindustrie und Großhandel, 2nd edition*. Munich.
- Kiefer, Nicholas [1988]. "Economic Duration Data and Hazard Functions." *Journal of Economic Literature* 26(2): 646-679.
- Kocka, Jürgen[1990]. *Arbeitsverhältnisse und Arbeiterexistenzen*. Bonn.
- Langewiesche, Dieter and Friedrich Lenger[1987]. "Internal Migration: Persistence and Mobility" in Klaus Bade, ed. *Population and Labor Migration in 19th and 20th Century Germany*. New York.
- Langewiesche, Dieter and Klaus Schönhoven[1981]. "Einleitung" in Dieter Langewiesche and Klaus Schönhoven, eds. *Arbeiter in Deutschland: Studien zur Lebensweise der Arbeiterschaft im Zeitalter der Industrialisierung*. Paderborn.
- "Lohnermittlungen" [1905-1907]. *Mitteilungen des Statistischen Amtes der Stadt München* **19**.
- Mitchell, Daniel J. B. and Jacques Rojot[1993]. "Employee Benefits in the Single Market". in Lloyd Ulman, Barry Eichengreen, and William T. Dickens, eds. *Labor and an Integrated Europe*. Washington, D. C.
- Neuemeier, Gerhard[1992]. *München um 1900. Wohnen und Arbeiten in einer deutschen Großstadt vor dem ersten Weltkrieg* diss., University of Munich.
- Nipperdey, Thomas[1990]. *Deutsche Geschichte, 1866-1918: Vol.1*. Munich.
- Parsons, Donald[1987]. "The Employment Relationship: Job Attachment, Work Effort, and the Nature of Contracts". in *Handbook of Labor Economics*, vol 2.
- Pollard, Sidney[1989]. *Britain's Prime and Britain's Decline*. London
- Pollard, Sidney[1965]. *The Genesis of Modern Management*. Cambridge, MA.
- Ritter, Gerhard A. and Klaus Tenfelde[1992]. *Arbeiter im Deutschen Kaiserreich: 1871-1914*. Bonn.
- Ruf, Bruno[1922]. *Die Baumwollindustrie Badens*. Frankfurt.
- Rupieper, Hermann-Josef[1982]. *Arbeiter und Angestellte im Zeitalter der Industrialisierung*. Frankfurt.
- Saxonhouse, Gary[1978]. "The Supply of Quality Workers and the Demand for Quality Jobs in

- Japan's Early Industrialization." *Explorations in Economic History* 15: 40-68.
- Saxonhouse, Gary[1976]. "Country Girls and Communication among Competitors in the Japanese Cotton-Spinning Industry". in H. Patrick, ed. *Japanese Industrialization and its Social Consequences*. Berkeley.
- Saxonhouse, Gary[1977]. "Productivity Change and Labor Absorption in Japanese Cotton Spinning 1891-1935". *Quarterly Journal of Economics* 91: 197-219.
- Saxonhouse, Gary and Gavin Wright[1984]. "Two Forms of Cheap Labor in Textile History." *Research in Economic History* Suppl. 3:3-31.
- Schäfer, Hermann[1979]. "Probleme der Arbeiterfluktuation während der Industrialisierung." in Werner Conzer and Ulrich Engelhardt, eds. *Arbeiter im Industrialisierungsprozeß*: 262-282. Stuttgart.
- Schlichter, Sumner[1921]. *The Turnover of Factory Labor*. New York.
- Schulz, Günther[1991]. "Betriebliche Sozialpolitik in Deutschland seit 1850." *Vierteljahrschrift für Wirtschafts- und Sozialgeschichte* Beiheft 95: 137-176.
- Schomerus, Heilwig[1977]. *Die Arbeiter der Maschinenfabrik Esslingen*. Stuttgart.
- Schützger, Heinrich[1922]. *Die oberbadische Baumwollindustrie von ihrem Anfang bis zum Jahre 1914*. Tübingen.
- Statistisches Jahrbuch der Stadt Berlin*[1898].
- Statistisches Jahrbuch deutscher Städte*[1908].
- Statistik des Deutschen Reiches, Neue Folge*[1903].
- Sundstrom, William[1988]. "Internal Labor Markets before World War I: On-the-Job Training and Employee Promotion". *Explorations in Economic History* 25: 424-445.
- Syrup, Friedrich[1912]. "Studien über den industriellen Arbeitswechsel." *Archiv für exakte Wirtschaftsforschung* 4(2): 261-307.
- Tennstedt, Florian[1983]. *Vom Proleten zum Industriearbeiter: Arbeiterbewegung und Sozialpolitik in Deutschland von 1800 bis 1914*. Cologne.
- Tilly, Richard[1990]. *Vom Zollverein zum Industriestaat*. Munich.
- Whatley, Warren and Stanley Sedo[1999]. "Turnover and Wages in the 1920s: New Evidence from Company Personnel Records" Mimeo.
- Zumdick, Ulrich[1990]. *Hüttenarbeiter im Ruhrgebiet: Die Belegschaft der Phoenix-Hütte in Duisburg-Laar, 1853-1914*. Stuttgart.

geboren 26. IV 92 Geburtsort Neurogriesdorf
1898 - 1905 78
 Tätigkeit Arbeitsverhältnisse: 7.6.11.1900

Vorgeschichte Beschreibung	Beginn		Ende		Arbeitsgeber	Arbeitsort
	Jahr	Monat	Jahr	Monat		
1. 20. 8. 92	92	8	20	8	St. P. ...	21
2. 20. 11. 92	92	11	20	11	St. P. ...	22
3. 21. 2. 93	93	2	21	2	St. P. ...	23
4. 21. 6. 93	93	6	21	6	St. P. ...	24
5. 22. 2. 93	93	2	22	2	St. P. ...	25
6. 22. 10. 93	93	10	22	10	St. P. ...	26
7. 23. 1. 94	94	1	23	1	St. P. ...	27
8. 23. 12. 94	94	12	23	12	St. P. ...	28
9. 24. 10. 94	94	10	24	10	St. P. ...	29
10. 24. 11. 94	94	11	24	11	St. P. ...	30
11. 24. 1. 95	95	1	24	1	St. P. ...	31
12. 25. 12. 95	95	12	25	12	St. P. ...	32
13. 25. 1. 96	96	1	25	1	St. P. ...	33
14. 25. 11. 96	96	11	25	11	St. P. ...	34
15. 25. 11. 96	96	11	25	11	St. P. ...	35
16. 25. 11. 96	96	11	25	11	St. P. ...	36
17. 25. 11. 96	96	11	25	11	St. P. ...	37
18. 25. 11. 96	96	11	25	11	St. P. ...	38
19. 25. 11. 96	96	11	25	11	St. P. ...	39
20. 25. 11. 96	96	11	25	11	St. P. ...	40
21. 25. 11. 96	96	11	25	11	St. P. ...	41
22. 25. 11. 96	96	11	25	11	St. P. ...	42
23. 25. 11. 96	96	11	25	11	St. P. ...	43
24. 25. 11. 96	96	11	25	11	St. P. ...	44
25. 25. 11. 96	96	11	25	11	St. P. ...	45
26. 25. 11. 96	96	11	25	11	St. P. ...	46

In dem Zeitraum vom Jahre 1905
 - 1906 & 1906 & 07 vorwiegend in
 Galvanoplastikarbeiten am Apparat
 tätig bei der Kammerfrau, Geringe
 Verdienste etc.
 Am 20. V. 08
 L. M.
 Josef Löffel
 Am 20. V. 08 abzugeben
 für Klärung etc. & Beschäftigung
 darüber wird sich zu entscheiden;
 es geht um eine Lösung
 als 8 - 8 Stunden arbeitend
 gegenüber zu sein
 L. M.
 Am 13. X. 08
 Josef Löffel

Für die Richtigkeit
 Am 11. V. 1908
 Ortskrankenkasse für ...
 I. A. ...