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Author

Eichengreen, Barry

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UNIVERSITY OF CALIFORNIA AT BERKELEY

Department of Economics

Berkeley, California 94720

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**Unemployment and the Structure of Labor Markets:
The Long View**

Barry Eichengreen

Economics Department,
University of California, Berkeley

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Key words: unemployment, labor markets, economic history

Abstract

Understanding the causes of high unemployment requires first understanding the structure of labor markets. This is an historical agenda, since it is only over time that there is significant variation in the institutions structuring labor market outcomes. This paper therefore adopts a long view on the operation of labor markets in order to provide a context for discussions of the sources and solutions to Europe's current unemployment problem. It characterizes the operation of labor markets since the second half of the 19th century. It pursues comparisons with market structure and performance in the interwar years and concludes with implications for today.

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Unemployment and the Structure of Labor Markets: The Long View¹

Barry Eichengreen
University of California at Berkeley

August 1994

I. Introduction

Understanding the causes of high unemployment requires first understanding the structure of labor markets. The latter is necessarily an historical agenda, since it is only over time that one observes significant variation in the socioeconomic institutions structuring labor market outcomes. While some investigators have fruitfully adopted international comparisons as a way of gaining purchase on institutional variation, contemporary labor markets share many common features, rendering the relevant variation fairly modest.

This paper therefore adopts a long view on the operation of labor markets in order to provide a context for discussions of sources and solutions to the current problem of unemployment. It attempts to characterize the operation of labor markets following the advent of industrialization -- essentially the second half of the 19th century. It pursues some comparisons with market structure and performance in the interwar years and concludes with some implications for today.

Any survey of such a vast topic must be partial and limited in scope. Here I confine myself to Anglo-American labor markets, not because these are exceptionally interesting and important or because they are representative of labor-market structures elsewhere in the industrial

¹ Prepared for the Egon Sohmen Foundation Conference on European Unemployment, Salzburg, 27-28 August, 1994, and forthcoming in the conference volume edited by Herbert Giersch. For helpful comments I thank Karl-Heinz Paque.

world. But the majority of historical research has focused on the U.S. and British labor markets. And historical statistics documenting the operation of these two markets are relatively well developed.

Rather than focusing exclusively on the level and incidence of unemployment, I embed my discussion of these issues in a broader analysis of labor market dynamics. Following recent research by historical scholars, I relate the incidence and duration of unemployment to the incidence and duration of employment and connect those variables, along with the dispersion and flexibility of wages, to the institutional structure of the labor markets in which these outcomes were generated.

II. Labor Market Structure and the Incidence of Unemployment

Four distinctive features of 19th century industry -- what is called the factory system -- were centralized power, the concentration of different activities under one roof, the foreman or overseer, and the "drive system" with which he was associated. In early textile mills, the first modern factories of any consequence (aside, perhaps, from "state enterprises" like armories and mints), the overseer rather than the enterprise owner-manager selected the workers, assigned them tasks, and monitored their activities. The overseer operated as an independent contractor, arranging with the proprietor to deliver the product within a specified time at a specified cost. He hired skilled workers directly; those skilled workers in turn hired their unskilled counterparts and worked in self-contained teams. By the 1880s, the self-contained teams had disappeared but many of the other arrangements remained. The overseer had evolved into the foreman, who had free rein in hiring, paying and

supervising those employed in a particular division of the firm. When hiring, he might favor relatives, friends or fellow countrymen, or he might toss apples into the crowd assembled at the factory gate as a way of picking job candidates. He could set wages and offer jobs for as little as part of a day. A worker might be fired by one foreman in the morning and hired by another in a separate division of the same company in the afternoon.

Associated with these practices was the "drive system." Workers were driven to move faster and work harder by close supervision, abuse, profanity and threats. They risked immediate dismissal if they did not perform as demanded.

This characterization, admittedly stylized, of labor-market arrangements in 19th century Anglo-American industry suggests two questions. First, what features of 19th century technology and socioeconomic structure encouraged the development of this form of labor organization? To put the question another way, what developments in 20th century industrial organization have caused employment relations to assume a very different form? And second, what were the implications of the drive system and its concomitants for the incidence and character of unemployment?

A. Sources of Labor-Market Structure

To understand the prevalence of subcontracting within the factory, it is useful to recall the activities that manufacturing firms subcontract today. An example is janitorial services that are provided at night. These are low marginal-productivity activities that, because they occur during off hours when regular supervisors are absent, have high monitoring

costs for the employer. Since these tasks do not need to be coordinated with those of other workers, they can be subcontracted to an independent janitorial firm. This example suggests that much manual labor in 19th century industry was undertaken by unskilled workers whose low productivity rendered costly their monitoring by upper-level management. Although much early factory production may have made use of a centralized power source, often it did little more than bring under one roof artisans or putting-out workers who continued to labor in a self-contained way. Only with the emergence of the multi-divisional enterprise in the final decades of the 19th century, which adapted hierarchical management techniques from the army and the railways, and the development of the continuous-process, mass-production techniques pioneered in slaughter houses and foundries was this early shop-floor labor organization systematically reorganized.² It follows that these same large, multi-divisional enterprises served, after World War I, as the hotbed for personnel departments and other modern labor market practices.³

The way in which workers were hired and fired points to a lower prevalence of firm-specific skills than is typical of 20th century industry. Employers would not have been inclined to take on workers without screening them or to dismiss them when the volume of work declined even temporarily had productivity depended significantly on formal training or on-the-job experience. Arbitrary hiring and firing were not characteristics of all 19th century jobs, as we will see when considering

² Alfred Chandler is the exponent of this view. See Chandler (1990) for his latest statement.

³ Sundstrom (1988a) provides evidence on the precocious development of internal labor markets before the 1920s.

evidence on labor turnover and unemployment duration; education, training and experience were by no means irrelevant in all 19th century occupations, in other words. The point is that in the 19th century world of more primitive and standardized technologies, firm-specific skills were less important than today.

Further evidence of this point is the emphasis placed by contemporaries, especially in Britain, on the problem of casual labor.⁴ The Fabian Socialists and other social reformers lamented the instability of employment -- the fact that many workers drifted from job to job, with periods of gainful employment separated by repeated spells of idleness. That idleness was regarded as a source of inefficiency for society and of demoralization for the worker who experienced it. Major employers of casual labor included the dockyards and the construction trades, where workers might be taken on for a part of a day and in which an individual might average no more than two or three days of work a week. But casual workers could also be found in numerous other occupations such as land transport, personal services, and various declining manufacturing and outwork trades. Industries whose demands for labor fluctuated widely across seasons and over the cycle relied on a substantial fringe of casual workers to perform less-skilled tasks. Stedman Jones (1976) estimated that 10 per cent of the labor force of London in 1891 was made up of casuals. Rowntree (1911) calculated that half of the unemployed in York in 1910 were casuals. The prevalence of short spells of employment and repeated spells of unemployment in the construction trades today suggests that some workers preferred the freedom that casual labor conferred and that the practice was

⁴ See for references Phillips and Whiteside (1985).

not always inefficient. Still, the emphasis placed by late-19th century social reformers on the problem of casual labor suggests that short employment durations and repeated unemployment spells characterized the situation of workers in a wider segment of the economy in the 19th century than today.

The prevalence of the drive system reinforces this presumption of the lesser importance of firm-specific skills. Insofar as productivity depended on brute force and physical effort rather than attention to detail, it was possible to reduce unit labor costs simply by driving labor to work harder. That the drive system utilized the threat of dismissal to elicit effort points up the fact that firing costs -- whether in the form of experience-rated unemployment insurance contributions, inverse-seniority layoff rules, or union protection against arbitrary employer treatment -- were weaker than today and sometimes nonexistent.

Again, such characterizations are likely to mislead if we apply them to an entire economy or generalize them across countries. Substantial portions of British industry operated in the presence of strong trade unions which allowed workers considerable shop-floor autonomy. In the final decades of the 19th century, British firms "opted for collective accommodation with unions of skilled and strategically positioned workers" rather than risking industrial conflict in order to restructure the organization of work (Elbaum and Lazonick, 1986, p.4). British trade unions staged successful strikes, gained local autonomy in bargaining, and exerted control of shop-floor organization. The power of these well-entrenched, craft-based unions and the failure of management to provide an effective counterweight slowed the adoption of the kind of modern multi-

divisional, continuous-process mass-production methods increasingly prevalent in the United States. At the same time, unions protected their members against arbitrary dismissal and enhanced their senior members' job security.

Late-19th century labor markets, this suggests, were divided into segments with different characteristics: a high-turnover segment comprised of some less skilled blue-collar laborers, and a low-turnover segment comprised of skilled blue-collar workers and their white-collar counterparts. The distinctiveness of these segments varied across countries: in the United States, for example, where trade unionism was slower to develop than in Britain, differences in the condition of skilled and unskilled blue-collar workers may have been less pronounced.

Segmented labor market theorists would observe that there is nothing distinctive about these characteristics of 19th century labor markets; they would diagnose the operation of modern labor markets in similar fashion. But there is reason to think that the secondary segment characterized by high turnover and repeated spells of unemployment was larger, as a share of the labor force, than it is in most advanced economies today.

B. Evidence on Labor Market Dynamics

Empirical work on the history of labor-market dynamics is in its infancy. That research which exists is consistent with the picture of a market characterized by high turnover, frequent short spells of unemployment, and pronounced differences in the experience of blue- and white-collar workers.

Thomas (1990) studies labor market-dynamics using the records of Britain's newly-established Unemployment Insurance Scheme in 1911-13, a

time when the unemployment rate was 3.7 per cent. He confirms the picture of rapid turnover and short unemployment spells. Estimated weekly rates of inflow and outflow from the pool of the unemployed, at 9 and 25 per cent, were much higher than those for post-World War II Britain. The expected duration of a spell of unemployment, calculated as the inverse of the outflow rate, was only four weeks (compared to more than 30 weeks in the 1980s).⁵

Thomas's evidence also suggests that unemployment was spread relatively evenly across sectors and workers. The differential in the unemployment rate between the high unemployment construction trades and the low unemployment mechanical engineering industry was only 2.8 percentage points, for example. Fewer than 1 per cent of all claims in 1913 were filed by individuals who remained unemployed for the entire year. Before leaping to the conclusion that long-term unemployment was rare, however, it is important to bear in mind that a claim is not the same as an individual, since workers were entitled to file separate claims for successive spells. Thomas calculates that the average claimant experienced 3 spells of unemployment a year. Given an average spell duration of three to four weeks, this is still consistent with a relatively low level of long-term unemployment. Additional evidence from trade union returns for engineers indicates that in 1904 the average unemployed worker spent 67 days out of work. Only 11 per cent of the unemployed spent more than 12 weeks out of work.

Jacoby (1983) confirms the picture of high turnover rates in the case

⁵ The duration of actual spells recorded in the 1911-13 insurance statistics (which differs from the inverse of the outflow rate because the unemployment rate was not in a steady state) was shorter still.

of the United States. He concludes that monthly separation rates in excess of 10 per cent were common in the 1900s and 1910s (compared to 2-4 per cent in the 1960s). Case studies bear this out; a survey of 14 industrial firms in Detroit in 1913-14, for example, indicated an average monthly separation rate of 15.3 per cent.

Margo (1990a) uses data drawn from the public use sample of the 1910 U.S. Census of Population to characterize the labor market experience of non-self-employed American males between the ages of 18 and 64 in non-farm occupations. It is useful to follow his procedure of comparing labor-market dynamics in 1909 with those in 1977-79, as analyzed by Murphy and Topel (1987). Murphy and Topel analyze U.S. labor market dynamics for an identically defined sample of non-farm males drawn from the Current Population Survey, in which questions on unemployment which parallel those of the 1910 Census were asked. An additional convenience is that measured unemployment rates in the two periods were remarkably similar (4.9 per cent in 1910 and 4.7 per cent in 1977-79).

Margo confirms the existence of striking differences in the speed of flow through the pool of unemployed. Compared to 1977-79, workers in 1909 had a 38 per cent higher monthly entry hazard from employment to unemployment and a 32 per cent higher monthly exit hazard. As Keyssar (1986) has emphasized, the chances of becoming unemployed were higher in the early 20th century, but unemployed workers were re-employed more quickly than today.

In 1909, 18.5 per cent of men reported experiencing some unemployment. This is higher than the comparable figure for 1977-79 -- 14.9 per cent -- again suggesting that the same level of unemployment was

spread more evenly across the labor force at the beginning of the century. Unemployment was also more evenly spread among socioeconomic and demographic groups.⁶ The mean duration of an unemployment spell was less than four months in 1909, compared to more than five months in 1977-79.

Shift-share analysis adjusting the 1910 data to correspond to 1977-79 industry shares does not alter the picture, but adjusting for 1977-79 occupational shares reduces the percentage of men experiencing some unemployment from 18.5 to 14.9 per cent, identical to that for 1977-79. Thus, the more even incidence of unemployment toward the beginning of the century appears to have been associated not with changes in the relative importance of mining and construction, non-durable goods manufacturing and durable goods manufacturing, or to the shift in employment from manufacturing to government and services, but to the relative importance of white and blue collar labor in a wide range of sectors. This is confirmed by the fact that 26 per cent of unskilled blue collar workers, 20 per cent of semi-skilled blue collar workers, and 24 per cent of skilled blue collar workers experienced some unemployment in 1909, two or three times the incidence reported among white collar workers. Thus, there is no evidence here that the cleavage in unemployment experiences in 1909 was between skilled and unskilled factory laborers; rather the gulf was between blue-collar workers on the shop floor and accountants, clerks, middle managers and others in the front office.

Shifts in occupation can explain most of the long-term decline in the

⁶ As Margo (1992) puts it, "The probability of becoming unemployed was less a function of personal characteristics, such as age, work experience, education, marital status, than in the post-World War Two period."

entry hazard but only a portion of the decline in the exit hazard. Margo interprets this as suggesting that factors such as unemployment benefit and unionization were more important than changes in occupational mix for the long-term increase in the duration of unemployment spells.

It is tempting to infer from the even incidence of idleness and the prevalence of repeated short spells of unemployment that job attachment was looser in the 19th century. This would be consistent with the emphasis in the literature on the lesser importance of firm-specific skills. Yet just as Hall (1982) found for the 1970s that, despite the brevity of the typical job, most employment is concentrated in near-lifetime jobs, it could be that at the beginning of the century turnover among newly hired workers was high but that the job of the average worker was lengthy. Slichter's (1919) suggestion for the U.S. that most labor turnover was due to a few workers changing jobs rapidly is consistent with this hypothesis, although the relatively even incidence of unemployment is more difficult to reconcile with this view.

Akerlof and Main (1981) calculated that the average male in the modern U.S. economy could be expected to stay with his employer for 18 years. The simplest way of constructing comparable historical estimates is to assume that the economy was in a steady state and to therefore double the length of the average employment spell in progress (since observation is equally likely to occur at any point in a job). Carter and Savoca (1980) report data on various types of late-19th century workers: these suggest that males employed in the Michigan fire clay industry surveyed in the late 1880s stayed with an employer for an average of 9.2 years, gypsum industry workers for 7.3 years, grindstone industry workers for 7.8 years,

furniture workers for 6 years.⁷ Males in San Francisco in the early 1890s stayed with their current employer for 7.8 years, males in New Hampshire for 7.4 years. The consistency of these averages suggests that job tenure was shorter in the late 19th century than today, but that the picture of extremely short tenure and high turnover can be overdrawn.

More sophisticated analysis involves estimating a model of job duration. Carter and Savoca do so using data from a survey of workers conducted by the California Bureau of Labor Statistics in San Francisco in 1892. They estimate an average completed job duration of about 9 years. This may be an underestimate insofar as the San Francisco survey under-sampled married, homeownership workers. Adjusting their estimates for marital status, home ownership and number of dependents implies an average job length of 13 years.

Estimating a proportional hazards model using a sample containing information on a range of personal characteristics permits Carter and Savoca to address further claims about the causes of unemployment. Some historians argue that the persistence of non-industrial work cultures led workers to quit unexpectedly, while the absence of union work rules and the power of the foreman allowed workers to be dismissed arbitrarily. The implication is that personal and professional characteristics that explain the incidence of terminations and quits today should have little explanatory power a century ago. Carter and Savoca in fact find remarkably little difference between the 1890s and today in the role in quits and layoffs played by personal and economic characteristics. Thus, married

⁷ All of these data are from surveys conducted by the Michigan Bureau of Labor Statistics.

workers with children and mortgages were significantly less likely to quit, for example. The presence of capital-intensive production processes was associated with lower separation rates.

Carter and Savoca's results, subversive as they are to characterizations of the prewar labor force as a floating pool of casual workers, have not gone unchallenged. Jacoby and Sharma (1992) point out that San Francisco was disproportionately unionized, and that unionism, by protecting workers against arbitrary dismissal, increased job duration. In 1892, a recession year in San Francisco, poor job prospects should have led workers to hesitate before quitting. And Chinese workers, who accounted for 20 per cent of the local labor force and were concentrated in short-duration jobs, were not surveyed by the California State Bureau of Labor Statistics. For all these reasons, Jacoby and Sharma reject Carter and Savoca's challenge to the high-turnover model.

The obvious way of reconciling these views is by invoking the segmented labor market model. A majority of blue-collar workers may have experienced relative unstable employment, while a minority held lengthy, stable jobs. The difference from the U.S. economy in the 1970s and 1980s lies in the relative importance of the two segments. Abraham and Farber (1987) estimate that 49 per cent of blue-collar workers had completed job durations of ten years or more in 1968-81, while Carter and Savoca's figure for San Francisco in 1892 is only 27 per cent. Near-permanent jobs existed in medium to large firms in industries such as meat packing, print and rail transportation, where workers were protected against arbitrary dismissal by unionism and craft control. But this sector was small relative to the post-World War II period, condemning more workers to lives of unstable

employment.

What were the implications of this structure of labor markets for the responsiveness of wages to unemployment? Before considering explanations, it is important to acknowledge disagreement over the facts. Allen (1988) argues, upon constructing a consistent time series on U.S. wages from the 1890s, that wages a century ago were no more sensitive to the business cycle than they are today, and that they may have been less sensitive. Hanes (1993), on the other hand, finds that there was a decline in the flexibility of nominal wages in American manufacturing, but that this was missed by previous investigators because it occurred before their sample period began. American manufacturing firms had been inclined to cut money wages in response to declining demand for 20 years after the Civil War. Following the labor unrest of 1886, however, there was a shift in behavior. Time-series evidence to this effect, plus the cross-section finding that wage cuts were less prevalent in industries with a greater incidence of strikes, leads Hanes to conclude that the increased bargaining power of workers and threat of labor unrest led to the decline in wage flexibility.⁸

Since the U.S. economy featured low levels of unionization before the turn of the century, the credibility of the strike threat must have resided elsewhere. Hanes notes that large firms were notorious hotbeds of strikes. One interpretation is that as firms grew more capital intensive, they adopted high-speed-throughput, mass-production techniques which rendered them vulnerable to temporary shutdowns. The growing sophistication of the prevailing technology placed a greater premium on firm-specific skills,

⁸ Sundstrom (1992) also emphasizes the association between nominal wage rigidity and the strike threat in the 1890s.

making it increasingly difficult to replace striking workers on short notice.⁹ Workers used this leverage to limit wage cuts. Following the eight-hour-day movement and Haymarket riot of 1886, firms adapted their behavior accordingly. In the short run, they hesitated to cut nominal wages in recessions.¹⁰ In the long run, they developed administered wage scales and centralized the personnel-management function in an effort to control the labor market.

III. Interwar Comparisons

World War I was a watershed in the organization of Anglo-American labor markets. The British and U.S. governments sought to collaborate with organized labor to secure labor peace and insure that industrial disputes did not disrupt the war effort. "Military victory required a radical redirection of economic resources and the maintenance of social solidarity..." as one set of coauthors put it.¹¹ Labor's position strengthened as unionization scaled new heights. Labor markets tightened, encouraging industrial disputes despite government's best efforts to

⁹ Sundstrom (1992), using data for a cross section of Cincinnati manufacturing firms in the recession of 1893, finds that the prevalence of wage cuts was less in relatively capital-intensive sectors where few workers were paid by the piece. Raff's (1988) explanation of Henry Ford's five dollar day in terms of the threat of labor action is also consistent with this interpretation.

¹⁰ Ozanne (1967, p.239) describes the change in practice at McCormick and International Harvester. "The depression of 1893, coming close on the heels of the terrible labor troubles of 1885 and 1886, brought a dramatic change in the company's wage-cutting tactics even though at that time there were no unions in the plant. Instead of an across-the-board cut as in 1884, the company maintained its common labor rate through three years of depression, cutting it only at the end of 1896." Cited in Sundstrom (1992), pp.449-450.

¹¹ Phillips and Whiteside (1985), p.112.

suppress them. Employers responded by improving working conditions and bidding for the allegiance of a core group of workers by rewarding them with employment security. While not all of these changes proved permanent (unionization rates, for example, fell back following the conclusion of hostilities), the war still represented a break with prewar modes of labor-market organization.

The wartime shock also lent impetus to the development of personnel-management practices.¹² Government intervention in the industrial relations of sectors regarded as essential to the war effort encouraged firms to innovate so as to preempt official incursions. As the labor market tightened, effort norms and shop-floor discipline were eroded. The spread of unionism and the availability of alternative job opportunities undermined the effectiveness of the drive system: as absenteeism and tardiness rose, productivity declined. In response, firms established compensation schedules that rewarded employees for tenure and encouraged internal promotion.¹³ They created personnel departments designed to screen workers for reliability. The proportion of firms with more than 250 workers that had personnel departments rose from perhaps 5 per cent in 1915

¹² Importantly, this bureaucratization of labor relations appears to have been a distinctively American phenomenon. In Britain, where the emergence of the large multi-divisional corporation lagged behind, this development less common. I return to this point below.

¹³ Sundstrom (1988b) dissents from the view that the establishment of centralized, job-based wage determination was a response to the threat of unionization and the tightening of the labor market, arguing instead that the increasing size and complexity of the firm aggravated the principal-agent problems between owners and lower-level managers that inevitably arose when the latter were delegated responsibility for wage determination. As Sundstrom notes, however, the two explanations are not really incompatible: the difficulty of monitoring the wage-setting decisions of lower-level managers became especially severe "in the extraordinarily tight labor market conditions of World War I..."

to 25 per cent in 1920. Increasingly, managers assumed responsibilities that had traditionally been delegated to foremen.¹⁴ They issued rules and regulations regarding the compensation and promotion of workers, superseding the drive system of previous years.

Once the war ended and soldiers were demobilized, labor markets loosened and many of these wartime developments were reversed. Some, however, proved permanent, especially when reinforced by public policy. In the U.S., the most significant policy initiative may have been the end of large-scale immigration. As the supply of immigrants was curtailed, firms found it necessary to restructure the organization of work. Skilled natives had to be substituted for unskilled immigrants. Machinery came to be used in more complex ways. This increased the cost of turnover, reinforcing the bureaucratization of the labor market and the spread of personnel management techniques.¹⁵

In addition, in the 1930s the National Industrial Recovery Act sanctioned the right of workers to organize and bargain collectively. It encouraged trade associations to submit to the National Recovery Administration labor codes detailing standards and conditions of work. The development of internal labor markets was given another boost as firms further bureaucratized their employment practices under NIRA pressure and sought to preempt unionization. In response to these pressures, practices

¹⁴ At the same time, Jacoby (1985, p.237) notes that as late as 1935, half of all U.S. firms still allowed the foreman to be the sole arbiter of dismissal. See also Nelson (1975).

¹⁵ See Slichter (1929) and Scott (1941) for details.

like inverse-seniority layoff rules finally became widespread.¹⁶

In Britain, meanwhile, the government attempted to "decasualize" the labor force. Ministry of Labour and Board of Trade officials sought to encourage the development of more stable employment relationships on the docks and wherever casual labor prevailed. They encouraged port employers to offer a guaranteed minimum income and job tenure to dockers. These initiatives were not entirely successful, but they reinforced other trends, such as the increasingly capital-intensive and skilled nature of dock work and similar forms of labor, leading to more stable employment relationships.

British labor market dynamics were further transformed by unemployment insurance. Public insurance had first been provided in selected sectors in 1911. But the scheme's coverage was limited. Starting in 1920 it was extended to virtually all workers outside the agricultural and personal service sectors. Because of the particular form of the Unemployment Insurance Scheme, it is not clear whether it was conducive to repeated short spells of unemployment or to an increasing prevalence of long spells. Rules limiting the length of time for which benefit could be drawn should have limited the incentive to remain unemployed for extended periods. But these regulations were relaxed when high unemployment became a pressing problem in the 1930s. Workers entitled to draw half or more of their regular earnings for an unlimited period and relieved of commuting costs and other professional expenses may have been encouraged to shun

¹⁶ Jacoby (1985) notes that at the beginning of the 1920s only a small minority of industrial firms had definite procedures governing layoffs. Hence, foreman continued to exercise extensive control of the discharge process.

short-term jobs. On the other hand, the short waiting period prior to qualifying for benefit may have encouraged job sharing and short spells of unemployment. The scheme treated any three days of unemployment occurring in a period of six as continuous with previous days unemployed; it thus required no further waiting period prior to drawing benefit. This gave rise to the "OXO system," named for the arrangement of days of work (O) and leisure (X). Individuals could work for three days each week and be idle for three, permitting two workers to share a single job and, courtesy of unemployment insurance, sacrifice little income. Even before the Great Depression struck, systematic short time was used as a means of job sharing; nearly one in five cotton industry workers was on short time in the second half of the 1920s. "Work pools" were common in the shoe and hat trade and the coal industry as well (Gibson 1931). One can imagine how this encouraged repeated short spells of unemployment, but not of the irregular and unorganized nature of prewar casual work.

In the United States, the advent of federal unemployment insurance did not occur until later.¹⁷ Meanwhile, a surprising number of private firms provided relief programs for their employees.¹⁸ Some unemployed

¹⁷ The first compulsory state unemployment insurance law was that of Wisconsin, adopted in 1932. The fact that work sharing increased in the U.S. as well as the U.K. after 1929 undermines the notion that the OXO system was wholly responsible for British short time. Thus, in the U.S. the number of establishments that had part-time employment rose from 15 per cent in September 1929 to 42 per cent in January 1931. Jacoby (1985), p.212. The practice was promoted by the Hoover Administration, through the President's Emergency Committee on Employment and its successor, the President's Organization on Unemployment Relief. Bernanke (1986) models the simultaneous determination of wages, hours and workers in the 1930s, emphasizing that more adjustment occurred on the hours margin than has been typical of post-World War II recessions.

¹⁸ One in three large enterprises did so in 1930-33 according to the National Industrial Conference Board (1934).

workers also had the option of public works employment. Margo (1993) reports that persons on work relief had longer incomplete spells of unemployment than other unemployed persons. Compared to unemployed persons not on work relief, twice as many of those on relief in 1940 had been without a non-relief job for a year or longer. It is hard to know whether the provision of public-works employment encouraged workers to shun regular jobs, or whether those least able to obtain regular employment had preferential access public-works employment. But this pattern is at least consistent with the view that the increased provision of public employment increased the length of time for which many of those who became unemployed in the 'thirties remained out of work (Kesselman, 1978).

While these developments hardly transformed labor markets into their late 20th century form, they do appear to have slowed the rate of turnover and lengthened the average duration of unemployment spells. Trends are unfortunately obscured by the fact that not just institutional arrangements but also macroeconomic conditions had changed. That a larger share of unemployed workers in the 1930s now experienced long spells of idleness may say more about the depressed state of the macroeconomy than about changes in labor-market structure. Thomas (1988) reports rates of inflow into unemployment in 1931 that were essentially the same as those of 1911-13. This may indicate that turnover rates were little different than 20 years before, or more plausibly that turnover had declined somewhat but that current circumstances were atypical, with inflow rates temporarily boosted by the onset of the Great Depression. By how much is difficult to say. The difference on the outflow side was more dramatic: the average outflow rate was 11.6 in 1926-38, compared to 24.9 per cent in 1911-13. The fall

relative to 20 years before presumably reflected both some secular decline in the average rate of flow through the labor market as well as the depressed employment prospects of the 1930s. It is worth noting that at 11.6 per cent the outflow rate, even in these adverse conditions, was still more than double that for Britain in the 1970s.¹⁹

These inflow rates (and the steady-state assumption) imply that the expected duration of a spell of unemployment rose from 4 weeks in 1913 to 23 weeks in 1931 (compared to 32 weeks in 1984).²⁰ The steady-state assumption is problematic, however. Outflow data suggest shorter average expected durations (on the order of eight weeks, but these are still double the average for 1911-13). They suggest that only half as many of the unemployed suffered from prolonged spells in 1934 as in 1984 (20 versus 40 per cent).

Interwar data also suggest that the burden of unemployment was shared less evenly across socioeconomic groups than before 1913. In Britain, male unemployment rates in 1931 ranged from 1.8 per cent for highly-trained professionals to 5.6 per cent for clerks, 12 per cent for skilled and semi-skilled manual workers and 22.5 per cent for the unskilled. Average expected unemployment durations for males ranged from 4 weeks for 18-20 year olds to 10 weeks for 35-44 year olds and more than 22 weeks for 60-64 year olds. In Michigan, male unemployment rates as of 1935 were less than 10 per cent for white collar workers but more than 20 per cent for blue

¹⁹ Baily (1983) provides comparisons for the United States which point in the same direction.

²⁰ Thomas (1988), pp.103, 127. The same rate of inflow implies a longer average duration because the unemployment rate had risen.

collar workers.²¹ They ranged from 10 per cent for clerical workers, to 16-17 per cent for skilled and semi-skilled manual laborers, to 29 per cent for the unskilled. If the spread of firm-specific skills gave firms additional incentive to hoard workers during downturns, this was clearly more the case for the skilled than the unskilled.

Thus, the picture is one of an interwar labor market in which rates of turnover had slowed and the incidence of unemployment had grown more uneven, though neither change was as pronounced as it was to become in the 1970s and 1980s.²²

Again it is worth inquiring into the implications of these changes for wage flexibility. Gordon's (1982) time-series analysis reveals a decline after World War I in the responsiveness of wages to fluctuations in GNP for the U.S. but not for Britain. Hatton's (1988) prewar and interwar comparisons for Britain similarly do not indicate a decline in wage flexibility. Nor does Thomas's (1992) analysis of the interwar U.K.

The key differences between the two countries may have been the rise of internal labor markets and bureaucratized wage setting in the U.S. but not in the U.K., plus the policies of American government. As Sundstrom (1988b) shows, the bureaucratization of wage setting in the United States made it increasingly difficult after World War I for employers to adjust wages in response to demand fluctuations. The growing inertia of American wages was reinforced by the policies of the Hoover Administration, which

²¹ Jensen (1989), p.569.

²² As Thomas puts it, "although the total insured population in 1933 was only half that of fifty years later, the volume of inflows on to the register was almost three times as large. The rapid rate of turnover is reflected in a considerably lower mean duration of completed spells, despite a higher unemployment rate." Thomas (1988), p.127.

jawboned major employers to refrain from initiating wage reductions in a misguided effort to sustain the level of demand. While the provision of unemployment benefits for virtually unlimited periods could not have encouraged job search by British workers and enhanced the flexibility of sterling-denominated wages, there is little evidence that its effects were as profound as those of bureaucratized labor relations and industrial policy in the United States.

IV. Implications for Today

Any analysis of the historical evolution of industrial labor markets is necessarily a tale of continuity and change. There is continuity in the differing degrees of job stability enjoyed by white and blue collar workers and in the imperfect wage flexibility that appears to characterize all labor markets. There is change in the secular decline in the speed of job turnover and the more uneven incidence of unemployment.

While industrial labor markets never resembled the perfectly flexible spot markets of textbooks, from a long-term perspective it is possible to discern a decline in the degree of nominal wage flexibility and an increase in the incidence of long-term unemployment. Commentators considering the problem of unemployment from the viewpoint of Europe in the 1990s are tempted to attribute these phenomena to the market power of unions and the adverse incentives created by unemployment insurance and other forms of government intervention. While nothing in this paper leads one to dismiss factors such as these, the present analysis points also to technological and institutional factors working in the same direction. Over the last century, the growing capital-intensity of production, the greater

complexity of technology, the heightened interrelatedness of tasks, and the rising importance of firm-specific skills all have enhanced the ability of insiders to resist wage cuts and the incentive for management to adopt alternative strategies for coping with demand fluctuations. The internal labor markets and personnel-management practices developed in response reinforced the trend toward greater nominal inertia.

Reforms of public programs and limits on monopoly power in the labor market are all to the good, but they alone will not restore the wage flexibility, high turnover, even incidence of unemployment, and limited prevalence of long-term joblessness that were characteristic of earlier eras.

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