

Employee discharge in the 20th century: a review of the literature

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Employee discharge for unsatisfactory performance, misconduct, interpersonal differences between employer and employee, or other reasons related to employee behavior has been an integral aspect of the employment relationship in the United States. For many years, termination of non-unionized employees has been subject to the "employment at will" doctrine—that is, employers have the right to discharge "at will." Only employees covered by collective bargaining agreements are generally protected against unjust discharge by grievance and arbitration procedures.

Challenges to the employment at will doctrine have been voiced by many industrial relations scholars¹ and occasionally by union representatives.² Proponents of statutory protection against unjust discharge argue that the employment at will doctrine is pernicious. They claim the United States stands virtually alone among democratic, major industrialized nations in not providing statutory protection against unjust discharge for private sector employees beyond specific statutes which protect members of minority groups, women, workers between 40 and 70 years of age, handicapped workers, and workers involved in union activities.

Despite these criticisms, modifications of the employment at will doctrine have been relatively minor. While decisions by the courts have altered the employment at will doctrine in more than half the States, these decisions have been applicable only where a public policy has been violated or where there is evidence of an implied contract between the employer and the employee.³ Bills were introduced in Michigan legislature in 1982 and in California in 1984 which would have provided general protection against unjust discharge for employees generally. However, neither bill came to a vote.

This report provides a systematic, cumulative analysis of studies on discharge for cause that have been published

during this century. We examine the cyclical relationship evidenced between the discharge rate and the quit rate, as well as the relationship between discharges and collective bargaining, seniority, age, skill level, and job search. Our findings suggest that the level of employee discharges is (1) positively associated with the quit rate, (2) inversely associated with age, seniority, and skill level, and (3) unrelated to union membership. We also found that discharged workers remained unemployed longer than other workers separated for other reasons.

Overview of the literature

The focus of the literature on employee discharge has been on achieving a better understanding of the causes and reasons for turnover among manufacturing industry employees. Several studies have analyzed data from the Bureau of Labor Statistics surveys on labor turnover.⁴ In each study, employee reasons for leaving were classified as resignations, layoffs, discharges, and quits. Discharges were defined as "terminations of employment initiated by the employer for such reasons as incompetence, violation of rules, dishonesty, laziness, absenteeism, insubordination, and failure to pass the probationary period."⁵

Definitions varied among studies which did not use BLS data. For example, in Anne Bezanson and others, an employee discharge occurred when an employer "forced" a termination for some "real or fancied cause."⁶ Sumner Slichter categorized discharge as a termination of employment because of unacceptable skill, experience, physical ability, or psychological qualifications; lack of willingness to do the work; bad attitude; and positive misconduct (insubordination, rule violation, dishonesty, fighting, and intoxication).⁷ Some of the firms in the Slichter study counted as a "discharge" any worker who was dismissed for absence from work without an excuse.

In perhaps the most ambitious of the early turnover studies, Paul Brissenden and Emil Frankel in 1922 published the results of a survey conducted during 1915 and 1916 and a survey after the United States entered World War II, conducted during 1918.⁸ The 260 establishments surveyed employed more than 500,000 workers in 17 industrialized States. Similar to the other studies, separations were categorized as quits, layoffs, and discharges. A later study by Charles Myers and W. Rupert MacLaurin in 1943 traced

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the interfactory movement of 2,451 employees across 37 manufacturing establishments during the late 1930's and early 1940's.⁹ The primary data source for the Myers and MacLaurin study was employee records of the surveyed establishments.

More recent work has analyzed responses of employers to questionnaires. Shirley Neill and Jerry Custis in 1978 analyzed employee discharge using survey responses obtained from more than 1,700 school district superintendents.¹⁰ This study concluded that between 5,000 and 10,000 teachers were discharged each year in the United States during the late 1970's because they did not meet performance standards established by their respective school districts. James Medoff and Katherine Abraham in 1980 studied involuntary terminations—that is, layoffs and discharges under explicit (union) and implicit (nonunion) contracts—in a survey of 1,085 firms which yielded 260 usable responses.¹¹ Finally, Jack Stieber and Richard Block gathered information about the attitudes toward discharged employees and the incidence of discharge during 1980 among a sample of 234 Michigan employers.¹² The Stieber-Block study was an improvement over earlier research in that all industries were surveyed, including manufacturing, construction, retail and wholesale trade, transportation, and services. Data on employee discharge were also collected for three employee groups: nonexempt nonoffice employees, nonexempt office and clerical workers, and exempt lower level employees.

Other recent studies have considered the employee as the primary unit of analysis. In one study, the job survival of 1,736 State employment agency placements in a variety of service and manufacturing jobs was analyzed.¹³ In another, 596 consumer loan officers of a large, geographically dispersed financial institution were reported to have been discharged from 1968 to 1973 at a rate of 6 per 100 loan officers.¹⁴

Cyclical trend of national discharge rates

In an international comparison of turnover trends, the International Labor Organization (ILO) concluded in 1960 that: "During the downturn (or following the onset of the slack season) layoffs and discharge rates tend to increase, while employee-initiated separations decline."¹⁵

The report explained that because of the large supply of labor available during a recession, employers have the luxury of enforcing higher standards of behavior and performance. Discharge rates should thus rise, given that infringement of rules would probably be dealt with more forcefully. As business conditions slacken, the lower standards of employee selection which applied during the previous period of prosperity may contribute to higher discharge rates. When labor is scarce, employers reduce their hiring standards by hiring marginal performers who, during other years, would not be considered acceptable. As business conditions worsen, these employees would then become

prime candidates for discharge.

Our evidence, drawn from over a 60-year period, does *not* support the ILO hypothesis. One of the earliest studies suggested that there seemed to be a "definite relation between the accession and discharge rates, due, possibly, to the process of selection which goes on when new workers are taken on in large numbers."¹⁶ The discharge rate in this study was 23 per 100 of total estimated employment during 1913, an economically prosperous year. The rate dropped to 16 per 100 during the 1914 recession. Another early study, admittedly not conclusive, found that the number of discharges in five Chicago firms was "much more numerous in times of prosperity than in times of depression."¹⁷

In a trend analysis which compared quit and discharge rates in manufacturing industries during the 1930-50 period, one researcher noted that the rates varied in parallel rather than opposite directions. It was also suggested that "busy times whether in war or peace, tend to raise both [the discharge and quit rates] . . . even the slight worsening of economic activity during 1924 and 1953 resulted in a prompt and sharp decline in both rates."¹⁸ Other studies, using cross section data, similarly concluded that the discharge rate was positively associated with economic expansion.¹⁹

Unpublished BLS historical data on discharges for the 1919-81 period also support the conclusion that the discharge rate is positively associated with the business cycle. (See chart 1.) Higher discharge rates were reported during the 1920's, World War II, the Korean War, and during the economic expansions of 1969, 1973, and 1979. Considerably lower rates were reported during the depression of the 1930's. A sharp jump in the rate during 1923 followed the general business upheaval during this period. Firms were expanding during 1922 and the first half of 1923, but began to contract "moderately but steadily from the middle of 1923 throughout 1924."²⁰

As suggested earlier, the empirical relationship between the discharge rate and the business cycle, as revealed in these studies, does not support the ILO conclusion that discharge rates increase during recessions. The following factors probably contributed to lower discharge rates during economic downturns. First, with large *layoffs* during a recession, it is not necessary for employers to resort to discharge because they have the opportunity to include marginal performers among the layoffs. This would bias discharge estimates downward. Second, workers would be expected to be more concerned about retaining their jobs during a recession, giving employers less reason to discharge them. Third, employers can be more selective when hiring during a recession.

Collective bargaining and discharges

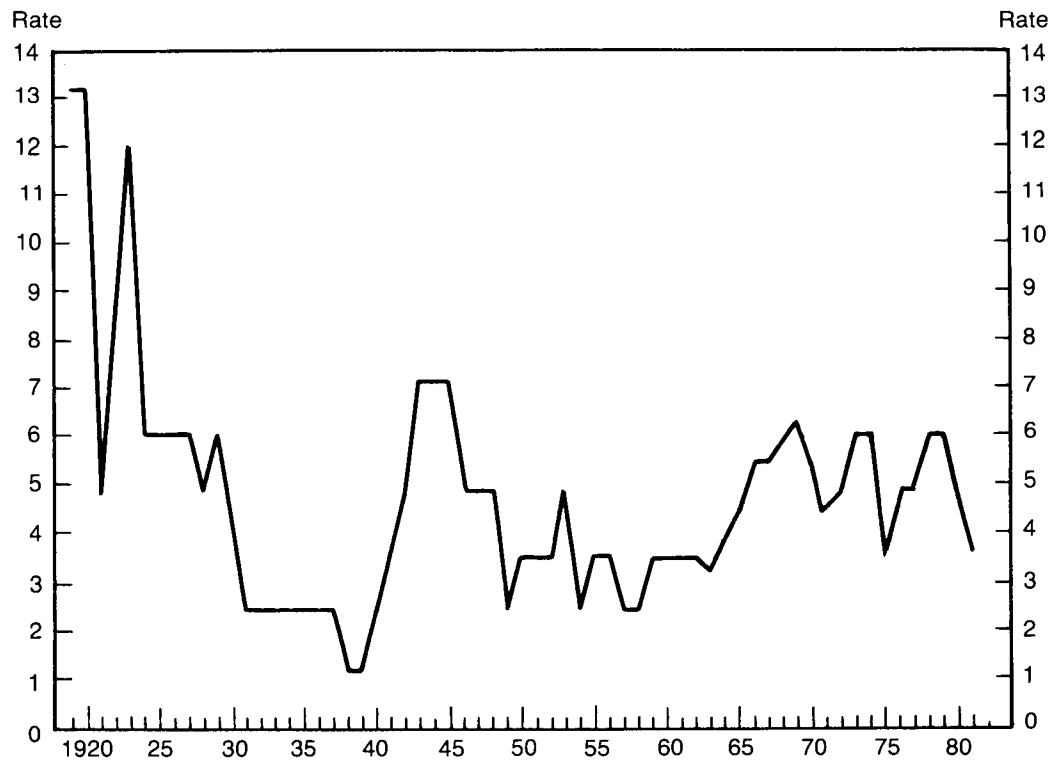
Because greater job protection is afforded to workers under collective bargaining contracts, discharge rates would be expected to be lower among unionized workers than

among nonunionized workers. The increasing proportion of the work force that became organized after enactment of the National Labor Relations Act should have dampened the discharge rate, especially in manufacturing. The Wagner Act, enacted in 1935, was not held constitutional until 1937. Given that discharge for union activity was not unlawful before the Wagner Act, we would have expected discharge rates before 1935–37 to have been relatively high, compared with the post Wagner Act period. However, as seen in the chart, discharge rates throughout the 1930's were the lowest of the entire century. This was probably due to the influence of the Great Depression. The large number of layoffs for economic reasons and the low hiring rates during this period

made it unnecessary for employers to resort to discharge to get rid of undesirable workers.

During the early part of the 20th century the country experienced extremely high discharge rates—the annual discharge rate in manufacturing was as high as 13 per 100 employees. Other research confirms these high estimates. In an analysis of 78 manufacturing firms in Chicago during the 1913–15 period, Slichter found that 16,963 persons were discharged out of a work force of 154,933—a discharge rate of 10 per 100 workers.²¹ Brissenden and Frankel reported a discharge rate of 9 per 100 workers for the 1913–14 period, and a rate of 13 per 100 workers during the 1917–18 period for 11 major industries. In this study, dis-

Chart 1. Annual discharge rates per 100 employees in manufacturing industries, 1920–81



SOURCE: Unpublished data from the Bureau of Labor Statistics.

charges “nearly always” meant dismissal for cause, which presupposed “some form of incapacity for the work or at least what is believed to be some defect in the character of the employee.”²² Bezanson and others reported discharge rates of 8.2 per 100 workers in 1921, 10.9 in 1922, 15.4 in 1923, and 10.3 in 1924 in 24 Philadelphia manufacturing firms.²³

Capricious dismissal by employers was probably one factor, among others, which stimulated interest among workers in collective bargaining. One scholar stated: “There is little doubt that the promiscuous use of dismissal is one of the prime factors in the twentieth century dissolution of employer-employee loyalties and the substitution of employee self-protection through collective bargaining.”²⁴

The discharge rate immediately prior to the passage of the National Labor Relations Act would of course have been affected by legal dismissals resulting from union organizing activity. It is not possible to ascertain what component of the discharge rate before 1935 is attributable to organizing activity. Fortunately, some of the early studies provided detailed summaries on the reasons for discharge.

For example, Bezanson reported that discharges for disciplinary reasons (which included uncooperative qualities) were more frequent than discharges for incompetency (mismatches between skills and abilities of the employee and the requirements of the job).²⁵ Discharges for disciplinary reasons as a proportion of all reasons for employee separation were 6.1 percent in 1922, 8.1 percent in 1923, and 10.1 percent in 1924. For the same years, discharges for incompetency constituted 5.3 percent, 5.3 percent, and 5.7 percent of all separations. Brissenden reported that in six metal trades establishments, 5 percent of all separations were due to incompetency, while 10 percent were associated with disciplinary causes—unreliable, lazy, careless, insubordinate, general misconduct, liquor, and “trouble breeding” (those who “attempted to create dissatisfaction among their fellow workers by urging or intimidating them to concerted action of some sort”).²⁶

Across six metal trades establishments in the Brissenden and Frankel study, “trouble breeding” accounted for 7.3 percent of all reasons for discharge. In a separate study of a large Pacific Coast department store, “trouble breeding” accounted for 8 percent of all reasons for discharge. Brissenden noted that: “the relatively large number discharged for being ‘trouble breeders’ may, perhaps, be explained by the fact that it is the policy of the establishments from which the figures . . . have been secured to deal with their industrial workers only as individuals.”

Slichter identified many reasons for discharge.²⁷ Generally, unadaptability (due to low skills or little experience) and positive misconduct (insubordination, violation of rules, dishonesty, fighting, and intoxication) accounted for the greatest number.

Discharge for “trouble making” would probably be considered an unfair labor practice under the National Labor

Relations Act and the Labor Management Reporting Act of 1947. Therefore, it is not surprising that studies conducted after 1935 were more likely to indicate that the primary reason for employee discharge was for incompetency. In a 1943 study, 71 of 90 discharges were for job incompetency (“not satisfactory,” “worker is slow,” “physically unadapted,” “incompetent,” and “spoiling work”).²⁸ Among the 19 individuals discharged for disciplinary reasons, only 2 were identified as “trouble makers or disturbers.”

In a 1964 study, top-level managers reported that the most important reason for discharging an employee under their supervision was “failure to improve after repeated warnings,” the second reason was “unacceptable personality traits,” and the third was “other breaking points” which included, among other reasons, union affiliation.²⁹

More recently, job performance has been found to account for a greater component of involuntary turnover than job attitudes.³⁰ In a 1981 study, employees with favorable performance records, reflected by job productivity, prior promotions to positions requiring greater responsibility, and positive overall performance ratings, were less often discharged for cause.³¹ Discharge for cause in this study was for theft, insubordination, inability to learn the job, and unacceptable performance.

To what extent has collective bargaining affected the incidence of employee discharge, if at all? The combined evidence seems to suggest that employer attitudes toward discharge have changed over the past 70 years. As noted earlier, extremely high rates of employee discharge were found during the first quarter of the century. With the establishment of the National Labor Relations Act and the institution of the unemployment insurance program in the 1930’s, employer motivations to report (or hide) employee discharges changed.

Before the National Labor Relations Act was passed, employers were under no restraint to report discharge figures accurately, including discharge for union activity. After the Act, employers might have wanted to hide discharges due to union activity because such discharges were prohibited by law. They might therefore have attributed such separations to other reasons, for example, layoff. Conversely because most States deny unemployment compensation entirely (or at least for a substantial number of weeks) to employees who are discharged for misconduct, employers might be motivated to claim that a separation was for misconduct when actually it was due to another reason.

These conflicting effects, of course, complicate any comparison which might be drawn between the magnitude of pre-1940 discharge rates and those reported later. It is still probably reasonable to conclude, however, that discharge rates reported after World War II are more accurate than the rates during the early part of the century.

What has been the impact of collective bargaining on employee discharge recently? In 1983, Stieber and Block examined the impact of unionization on the discharge rate

among 234 Michigan employers during 1981.³² The mean discharge rate of unionized respondents was 4.4 per 100 employees, approximately half the discharge rate of non-unionized respondents (8.3 per 100). However, no impact of unionization on the discharge rate was found when controlling for the wage level of the firm. One interpretation of this result is that protection against discharge afforded by unions is illusory. An alternative interpretation is that unionized firms have lower discharge rates because “they have higher quality employees who would be unlikely to be discharged even absent a union.”³³

These results are consistent with longitudinal research. James Medoff analyzed the discharge rate in 3-digit manufacturing industries between 1959 and 1971 and found that the discharge rate is “not more than trivially higher under trade unions.”³⁴ In an analysis of durable and nondurable manufacturing industries, E. David Marwick found that the new-hire rate accounted for 94 percent of the variation on the discharge rate during 1978.³⁵ The proportion of the industry covered under collective bargaining contracts was, as in the Medoff study, not significantly related to industry discharge rates. Rather, high discharge rates were associated with low wage industries which, it was presumed, have a less mature work force, invest fewer resources in firm-specific human capital, and have a greater number of quits.

These findings may be due to the method used by the BLS to gather discharge data. When an employer discharges a nonunion worker, the worker remains discharged. When a union worker is discharged and is later reinstated by an arbitrator, there is no mechanism to rescind the earlier report of a discharge. Because arbitrators’ decisions usually lag behind discharges by 6 months to 1 year or more, the employer reports the discharge when it occurs, but cannot change this report if the arbitrator decided to reinstate the employee. Thus, there may be more of a difference between the union and nonunion experience with employee discharge than previous studies based on BLS statistics might lead us to believe.

Effect of discharge on the job search

Three studies were found which examined the impact of discharge on job search; two during periods of economic prosperity; one during an economic contraction. Results were consistent across all studies. Discharged workers sustained longer periods of unemployment than workers separated for other reasons. Charles Myers and W. Rupert MacLaurin found that the job search of discharged workers from 1937 to 1939 was significantly longer than the job search of persons who had previously quit or who had been laid off.³⁶ The mean duration of the job search for discharges was 4.7 months, with less than one-fifth able to find other jobs within the first month of unemployment; in contrast, 50 percent of the voluntarily separated workers obtained a job within the first month after job separation. A greater proportion of discharges also experienced the longest

periods of unemployment; 4 percent of the discharged workers faced 19 to 24 months of job search, compared with 1 percent of the workers who were on indefinite layoffs.

This evidence is consistent with a conclusion derived from mobility research.³⁷ In 1954, Herbert Parnes reported that employees who were involuntarily separated from their last job were financially disadvantaged when attempting to locate a job, in comparison to workers who had voluntarily separated. The job search of the involuntarily separated workers was found to be both longer and more costly.

Both studies were conducted during periods of relative prosperity. However, the Jack Stieber and Richard Block study, conducted during a recession, surveyed employer attitudes toward hiring discharged workers. When deciding whether to hire an applicant who was otherwise qualified for a position, employers were asked to evaluate the extent to which a previous discharge would influence the organization’s decisions to hire the applicant. Results indicated that employers awarded a strong negative weight to a previous discharge for any reason. Even if the previous discharge was for incompetence, which employers weighted as the least negative reason for discharge, 85 percent of employers attached “much importance” to the previous discharge or “would not hire” the applicant. Regardless of economic conditions, employers apparently hesitate to hire previously discharged workers over qualified job applicants who have been laid off for economic reasons or who have voluntarily quit their previous jobs.

Seniority and age

To the extent that senior workers are generally more productive and more likely to have a longer history of acceptable service, they should be less prone to discharge than newly employed workers. Research generally supports this expectation. Employee discharge in one company was inversely associated with length of service.³⁸ A greater proportion of new hires were also discharged during weak rather than strong economic periods. Seventy-three percent of the discharged employees during 1921 and 76 percent during 1922 had less than 1 year seniority. During the subsequent, economically weaker 2-year period, 95 percent and 91 percent of the discharges had less than 1 year seniority. Workers under age 25 accounted for nearly one-half of all discharged during 1924.

Considering age a proxy for seniority, Charles Myers and W. Rupert MacLaurin found that 70 percent of the discharged workers were 25 years of age or younger.³⁹ Extrapolating from the raw data reported in a more recent study, John P. Wanous and others found a discharge rate of 21 per 100 employees for “newly hired workers.”⁴⁰ Stephen Stumpf and Patricia Dawley found discharge for cause (including theft, unacceptable performance, insubordination, and inability to learn aspects of the job) to be significantly related to age and tenure of the employee.⁴¹ Zero order correlations between discharge and these factors

were negative and significant.

James Medoff and Katherine Abraham found that senior managerial and professional employees working under implicit contracts in a large corporation were more likely candidates for involuntary termination, including both layoff and discharge, than junior employees considered to be better performers.⁴² A strong, positive association was found between actual or scheduled layoff and years of company service. More specifically, employees with 30 years or more of service were 3.6 times as likely to be laid off or discharged as employees with 3 to 10 years of service. According to the company, these decisions were based primarily on past performance and ability. The authors suggest that one explanation for this finding may have been that the company was motivated to base its decisions on a "net value basis." Perhaps, the authors suggested, younger workers yielded a greater productive output for the money they were paid than more senior workers. This particular study has less relevance to employee discharge than the other studies because it failed to make a distinction between layoffs and discharges. Further, with an average seniority of 15 years, the study was weighted heavily in favor of workers having high seniority. The finding that an employer would have an economic incentive to discharge highly paid senior workers in such a work force seems plausible.

All of the studies employed different methodologies, considered different time periods, and studied different populations. Except for the Medoff and Abraham study, however, they suggest that younger, less senior workers are more likely candidates for discharge.

Skill level

The relationship between skill level and employee discharge has received relatively little attention. For studies which used the BLS labor turnover data, no distinction was possible between the discharge of lower and higher skilled employees. Discharge rates reported by participating establishments covered all employees, including salaried officers of corporations as well as executives and their staffs.

A theme in two early studies was that the discharge rate was higher for unskilled, presumably lower paid employees, than for skilled workers. Paul Brissenden and Emil Frankel found that the discharge rate per 100 full time workers was only 9 for skilled employees, but 27 for unskilled in 22 of the surveyed establishments which provided mobility data by occupational grade.⁴³ The highest paid employee group, middle and upper managerial personnel, was not studied, with one exception. Anne Bezanson and others found the discharge of "minor executives" was considerably lower than for semi-skilled or unskilled workers at one large establishment during 1923 and 1924.⁴⁴

In the Stieber and Block study, respondents provided estimates of the number of discharges among nonexempt, nonoffice employees and nonexempt, office and clerical employees. As expected, the discharge rate among the lower

skilled, nonoffice workers was higher, 6.6 per 100 employees, than among the office and clerical workers, 5.0 per 100 employees.⁴⁵

Because discharge data are not often disaggregated by skill or occupational level, conclusions must be tentative. The limited evidence suggests that less skilled workers are more prone to discharge. This would be consistent with studies which related discharge to seniority because higher skill levels should go hand-in-hand with greater seniority.

ALTHOUGH ANNUAL DISCHARGE RATES fluctuated widely during the early part of the century, discharges have been more prevalent during periods of economic prosperity than during recessions. Unions, collective bargaining, and the various State unemployment insurance systems have undoubtedly made employers more aware of the consequences of discharge decisions. It is important to note, however, that the discharge rate has fluctuated between 2 per 100 employees to more than 6 per 100 since World War II, and that the factor which appears to have most influenced these fluctuations is the state of the economy, not union penetration or collective bargaining. The research further indicates that job search after discharge is longer than job search after a separation for other reasons. Finally, the assertion that low level, low paid, less skilled, or low seniority employees are more prone to discharge than other employees also received empirical support. □

FOOTNOTES

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¹¹ James L. Medoff and Katherine G. Abraham, *Involuntary Termination Under Explicit and Implicit Employment Contracts* (Cambridge, MA, National Bureau of Economic Research, Inc., 1980), Working Paper, 634.

¹² Jack Stieber and Richard N. Block, *Discharged Workers and the Labor Market: An Analysis of Employment Attitudes and Experience, and Arbitration Decisions*, Report 21-26-80-11 (Washington, U.S. Department of Labor, 1983).

¹³ John P. Wanous, Stephen A. Stumpf, and Hrach Bedrosian, "Job Survival of New Employees," *Personnel Psychology*, 1979, pp. 651-62.

¹⁴ Stephen A. Stumpf and Patricia Kelly Dawley, "Predicting Voluntary and Involuntary Turnover Using Absenteeism and Performance Indices," *Academy of Management Journal*, March 1981, pp. 148-62.

¹⁵ International Labor Organization, "Labour Turnover—Meaning and Measurement," *International Labor Review*, June 1960, pp. 513-26.

¹⁶ Paul Brissenden and Emil Frankel, *Labor Turnover in Industry*.

¹⁷ Sumner Slichter, *The Turnover of Factory Labor*.

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¹⁹ Anne Bezanson and others, "Four Years of Labor Mobility;" W. S. Woytinsky, *Three Aspects of Labor Dynamics*; and E. David Marwick, *Labor Separations Data*.

²⁰ Anne Bezanson and others, "Four Years of Labor Mobility."

²¹ Sumner Slichter, *The Turnover of Factory Labor*.

²² Paul Brissenden and Emil Frankel, *Labor Turnover in Industry*.

²³ Anne Bezanson and others, "Four Years of Labor Mobility."

²⁴ Orme Phelps, *Discipline and Discharge in the Unionized Firm* (Berkeley, CA, University of California Press, 1959).

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²⁶ Paul Brissenden and Emil Frankel, *Labor Turnover in Industry*; and Paul Brissenden and Emil Frankel, "Mobility of Labor in American Industry," *Monthly Labor Review*, June 1920, pp. 36-56.

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³³ *Ibid.*

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⁴¹ Stephen Stumpf and Patricia Dawley, "Predicting Voluntary and Involuntary Turnover."

⁴² James L. Medoff and Katherine G. Abraham, "Involuntary Terminations."

⁴³ Paul F. Brissenden and Emil Frankel, *Labor Turnover in Industry*.

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Work-related deaths dropped sharply during 1983, BLS survey finds

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A total of 3,100 job-related deaths occurred in private sector establishments employing 11 workers or more in 1983, compared with 4,090 fatalities in 1982, the Bureau of Labor Statistics estimates.¹ Correspondingly, the fatality incidence rate dropped from 7.4 per 100,000 full-time workers in 1982 down to 5.6 in 1983, continuing a 5-year trend. (See table 1.) This decline occurred despite a 4-percent increase in employment among those firms.

Both the reported number of job-related deaths and the fatality rates decreased in all eight industry divisions between 1982 and 1983. (See tables 2 and 3.) A high of 730 lives were lost in manufacturing industries in 1983, and a low of 70 in finance, insurance, and real estate industries. Mining industries had the highest fatality rate of 27.6 and finance, insurance, and real estate industries had the lowest rate of 1.7 per 100,000 full-time workers. Roughly 400 of the 3,100 reported deaths involved a job-related illness.

The fatality data are based on reports received from a sample of employers selected randomly for the Annual Survey of Occupational Injuries and Illnesses. Participating employers provided a brief description of the object or event most directly responsible for the death.

Although the sample for this survey is fairly large, the fatality results present a wide range of analytical problems which make it difficult to compare year-to-year changes precisely. Because the sampling errors are relatively large even at the industry division level, the fatalities are classified into broad causal categories and represent the average for the 1982 and 1983 surveys.

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Table 1. Number and rate of fatalities for employers with 11 employees or more, private sector, 1979-1983

Year	Employment (thousands)	Fatalities	Incidence rate ¹
1979	61,660	4,950	8.6
1980	61,677	4,400	7.7
1981	62,895	4,370	7.6
1982	61,646	4,090	7.4
1983	63,981	3,100	5.6

¹The incidence rates represent the number of fatalities per 100,000 full-time workers and were calculated as: $(N/EH) \times 200,000,000$, where

N = number of fatalities
 EH = total hours worked by all employees during calendar year
 200,000,000 = base for 100,000 full-time equivalent workers (working 40 hours per week, 50 weeks per year).