NBER WORKING PAPER SERIES

THE CHANGING FACE OF JOB LOSS IN THE UNITED STATES, 1981-1993

Henry S. Farber

Working Paper 5596

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
May 1996

This project was funded under purchase order number B9461588 from the Office of the Assistant Secretary of Labor for Policy, United States Department of Labor. Additional financial support was received from the Center for Economic Policy Studies and the Industrial Relations Section, both at Princeton University. The work was improved by comments received from workshop participants at the University of Montreal, Princeton, Columbia, the National Bureau of Economic Research, Wharton, and the Board of Governors of the Federal Reserve. Anne-Louise Statt provided able research assistance. This paper is part of NBER's research program in Labor Studies. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

NBER Working Paper 5596
May 1996

THE CHANGING FACE OF JOB LOSS IN THE UNITED STATES, 1981-1993

ABSTRACT

I examine changes in the incidence and consequences of job loss by reported cause between 1981 and 1993 using data from Displaced Workers Surveys (DWS), conducted as part of the Current Population Survey (CPS) in even years since 1984. The overall rate of job loss is up somewhat in the 1990s. The increase in job loss is larger for older and more educated workers, but younger and less-educated workers continue to have the highest rates of job loss. Some significant changes are also found in the rate of job loss by reported reason. Next I examine the consequences of displacement for several post-displacement labor market outcomes, including the probability of employment, full-time/part-time status, the change in earnings, job stability, and self-employment status. The adverse consequences of job loss, which have always been substantial, do not appear to have changed systematically over time. More educated workers suffer less economic loss relative to income due to displacement than do the less educated. Self-employment appears to be an important response to displacement, and older workers and the more educated are more likely to turn to self-employment.

Henry S. Farber
Industrial Relations Section
Firestone Library
Princeton University
Princeton, NJ 08544
and NBER

The Changing Face of Job Loss in the United States, 1981-1993

Henry S. Farber

1. Introduction

In the first week of January 1996, AT&T announced that it was reducing its managerial workforce by 40,000 as a result of a substantial restructuring of it operations. This is only the latest in a string of widely publicized large labor force reductions announced by major American corporations. There is a perception that corporations, in response to increased competitive pressure are restructuring and downsizing their workforces, and particularly their white collar workforces, to an unprecedented degree and that the workers so displaced suffer substantial economic hardship.[1] In this study, I examine evidence from Displaced Workers Surveys from 1984 to 1994 to provide a comprehensive picture of the incidence and consequences of job loss over the 1981-1993 period and to determine the extent to which these perceptions are supported by labor force data.

Due to data limitations, it is difficult to get a perspective on who loses jobs prior to the 1980's. However, the Displaced Workers Surveys (DWS), which have been regular supplements to the Current Population Survey (CPS) at two year intervals since 1984, have useful information on job loss.[2] Specifically, these surveys ask workers if "In the past five years (past three years in the 1994 DWS) . . . has ' ' lost or left a job because of a plant closing, an employer going out of business, a layoff from which' ' was

---

This project was funded under purchase order number B9461588 from the Office of the Assistant Secretary of Labor for Policy, United States Department of Labor. Additional financial support was received from the Center for Economic Policy Studies and the Industrial Relations Section, both at Princeton University. The work was improved by comments received from workshop participants at the University of Montreal, Princeton, Columbia, the National Bureau of Economic Research, Wharton, and the Board of Governors of the Federal Reserve. Anne-Louise Statt provided able research assistance.

[1] Secretary of Labor Robert Reich makes this argument in a New York Times OP-ED piece, January 4, 1996, p.A20.

[2] The Displaced Workers Survey was part of the January CPS in even years from 1984 through 1992. It was part of the February CPS in 1994 due to the major redesign of the CPS that was implemented in January 1994.

not recalled or other similar reason." These data have much to tell us about job loss, and they form the core of my empirical analysis.

In my analysis, I focus on the distinctions made in the DWS regarding the stated reason for (or cause of) the job loss. There are three substantively important classifications that I will consider. These are job loss due to 1) plant closing, 2) slack work, and 3) position or shift abolished.[3] As I discuss in the next section, an earlier paper by Gibbons and Katz (1991) uses the distinction between plant closing and slack work to test an adverse-selection model. While I do not provide a specific model here, I investigate more generally how the incidence and costs of job loss due to these various stated reasons evolved over the 1981-93 period.

This is of interest because the term "position abolished" resonates with the well-publicized round of corporate downsizing and restructuring of the past several years. Workers who lose their jobs due to corporate downsizing or restructuring could conceivably report that it was due to any of the three reasons noted above. If the employer ceased operations at the site where the worker was employed, then the worker would likely report a plant closing. If the employer reduced employment across all or many workplace functions due to a decline in demand without ceasing operations, then the worker could report either that the loss was due either to slack work or to position/shift abolished. However, if the employer reduced employment in certain functions due to a "streamlining" of operations (as is generally reported to be the case in corporate restructurings that result in the elimination of, for example, managerial jobs), then the worker is likely to report that the loss was due to the position being abolished.

I do not want to make too much of these distinctions in worker self-reports of the reasons for their job loss. These are necessarily subjective attributions, and different workers could well respond differently regarding jobs that were lost in identical circumstances. For example, it might be the case that blue-collar workers, who historically have been subject to layoff due to cyclical fluctuations in demand, are likely to report job loss due

[3] There are several other, less common, options coded in the DWS including seasonal job ended, self-employment ended, and other. I discuss the coding of the reason for job loss in more detail below.

to a restructuring as being caused by slack work. In contrast, it might be that white-collar workers, who historically have not been nearly as susceptible to layoff due to cyclical fluctuations, are likely to report job loss due to restructuring as being caused by the position being abolished.

An important part of my task is to investigate the extent to which there are real economic differences underlying job loss due to the various stated reasons. I get some purchase on this question in several ways. First, the behavior over time and across types of workers of job loss rates by stated reason can be informative with regard to the cyclical sensitivity of and secular changes in the various types of job loss. Second, differences across types of workers in the incidence of job loss by reason (e.g., by education and occupation) can be informative about reporting differences. Finally, the consequences of job loss by reported reason are informative about the costliness of different types of job loss and whether the distinctions by type of job loss are important.

Here is a brief outline of the study. In the next section I present a brief review of the literature on job stability. In section 3, I discuss measurement and data issues relevant to the analysis, including problems introduced by changes to the DWS in 1994. Section 4 contains univariate analyses of the incidence of job loss by sex, age, education, occupation and industry. In section 5 I carry out this analysis in a multivariate context. I begin the analysis of the consequences of job loss in section 6 with an investigation of post-displacement employment probabilities. Section 7 contains an analysis of full-time/part-time status after job loss, and section 8 contains an analysis of changes in earnings. In section 9, I investigate post-displacement job (in)stability as measured by the likelihood among reemployed workers of having held more than one job since displacement. Finally, section 10 contains a brief analysis of self-employment as a response to displacement. Section 11 concludes.

2. Review of Recent Literature on Job Stability

There have been a series of analyses of job stability that have relied on mobility supplement to various January Current Population Surveys.[4] An influential early analysis was

[4] These mobility supplements, conducted in 1951, 1963, 1966, 1968, 1973, 1978, 1981, 1983, 1987, and

carried out by Hall(1982). He used published tabulations from some of the January mobility supplements to compute contemporaneous job retention rates. Hall found that, while any particular new job is unlikely to last a long time, a job that has already lasted five years has a substantial probability of lasting twenty years. He also finds that a substantial fraction of workers will be on a "life-time" job (defined as lasting at least twenty years) at some point in their life. Ureta (1992) used the January 1978, 1981, and 1983 mobility supplements to recompute retention rates using artificial cohorts rather than contemporaneous retention rates.

Several more recent papers have used CPS data on job tenure to examine changes in employment stability.[5] Swinnerton and Wial (1995), using data from 1979 through 1991, analyze job retention rates computed from artificial cohorts and conclude that there has been a secular decline in job stability in the 1980's. In contrast, Diebold, Neumark, and Polsky (1994), using CPS data on tenure from 1973 through 1991 to compute retention rates for artificial cohorts, find that aggregate retention rates were fairly stable over the 1980's but that retention rates declined for high school dropouts and for high school graduates relative to college graduates over this period. I interpret a direct exchange between Diebold, Polsky, and Neumark (1996) and Swinnterton and Wial (1996) as supporting the view that the period from 1979-91 is not a period of generally decreasing job stability. Farber (1995), using CPS data on job tenure from 1973 through 1993, finds that the prevalence of long-term employment has not declined over time but that the distribution of long jobs has shifted. He finds that less educated men are less likely to hold long jobs than they were previously but that this is offset by a substantial increase in the rate at which women hold long jobs.

Rose (1995) uses data from the Panel Study of Income Dynamics (PSID) to measure job stability by examining the fraction of workers who do not report any job changes in a given time period, typically ten years. Rose finds that the fraction of workers who reported

1991, contain information on how long workers have held their current jobs. Only the data since 1973 are available in machine-readable form.

[5] In addition to the January mobility supplements noted in the previous footnote, information on job tenure was collected in pension and benefit supplements to the CPS in May 1979, May 1983, May 1988, and April 1993.

no job changes in given length of time was higher in the 1970's than in the 1980's. He argues that this is evidence of increasing instability of employment. Unfortunately, due to the design of the PSID, Rose cannot examine the mobility experience of women so that his analysis is restricted to men.

Farber (1993) used the five Displaced Workers Surveys (DWS's) from 1984 to 1992 to examine changes in the incidence and costs of job loss over the period from 1982-1991. He found that there were slightly elevated rates of job loss for older and more educated workers in the slack labor market in the latter part of the period compared with the slack labor market of the earlier part of the period. But he found that job loss rates for younger and less educated workers were substantially higher than those for older and more educated workers throughout the period. His findings are consistent with the long-standing view that younger and less educated workers bear the brunt of recessions.

Gardner (1995) has carried out the first analysis of which I am aware that incorporates the 1994 DWS. She examines the incidence of job loss from 1981-92. While she finds roughly comparable overall rates of job loss in the 1981-82 and 1991-92 periods, she finds that the industrial and occupational mix of job loss changed over this period. There was an decreased incidence of job loss among blue-collar workers and workers in manufacturing industries and an increase in job loss among white-collar workers and workers in non-manufacturing industies.

There is a substantial literature using the DWS to study the post-displacement employment and earnings experience of displaced workers (e.g. Podgursky and Swaim, 1987; Kletzer, 1989; Topel 1990). This work demonstrates that displaced workers suffer substantial periods of unemployment and that earnings on jobs held after displacement are substantially lower than pre-displacement earnings. Farber (1993) finds that there was no difference on average in the consequences of job loss between the 1982-83 recession and the the 1990-91 recession.

The earnings loss suffered by displaced workers is positively related to tenure on the pre-displacement job. On the other hand, Kletzer (1989) finds further that the post-displacement earnings *level* is positively related to pre-displacement tenure, suggesting that workers displaced from long jobs are more able on average than those displaced from shorter

jobs. In recent work, Neal (1995) using the DWS and by Parent (1995) using the National Longitudinal Survey of Youth (NLSY) find that workers who find new employment in the same industry from which they were displaced earn more than do industry switchers. This new work suggests that Kletzer's finding that post-displacement earnings are positively related to pre-displacement tenure is the result of the transferability of industry-specific capital. Workers who are reemployed in the same industry "earn a return" on their previous tenure while those reemployed in a different industry do not.

Gibbons and Katz (1991) take a different approach. They analyze the consequences of job loss in the context of an adverse selection model. Specifically, they argue that workers displaced due to "slack work" are subject to selection on the part of their employer. Within the limits of human resource management policies that give preference in retention to high tenure workers, employers are likely to lay off less productive workers when demand declines. In contrast, workers who are displaced due to a "plant closing" are not subject to such selection. Employers must lay off all workers in such situations. On this basis, Gibbons and Katz argue that workers displaced due to slack worker will fare worse after displacement than workers displaced due to a plant closing. They present evidence from the 1984 and 1986 DWS's consistent with this adverse selection model.

3. Some Data Considerations

What is a Job Loss?

I analyze data on individuals between the ages of twenty and sixty-four from the Displaced Worker Supplements (DWS) to the January Current Population Surveys (CPS) in 1984, 1986, 1988, 1990, and 1992 and the February CPS in 1994. Each Displaced Workers Supplement from 1984-92 asks workers if they were displaced from a job at any time in the preceding five-year period. The 1994 DWS asks workers if they were displaced from a job at any time in the preceding three-year period. Displacement is defined in the interview instructions to the relevant Current Population Surveys as involuntary separation based on operating decisions of the employer. Such events as a plant closing, an employer going out of business, a layoff from which the worker was not recalled are considered displacement. Other events including quits and being fired for ". . . poor work performance,

disciplinary problems, or any other reason that is specific to the individual alone . . ." are not considered displacement (U.S. Bureau of the Census, 1988, Section II. p.4). Workers who are laid off from a job and rehired in a different position by the same employer are considered to have been displaced. Thus, the supplement is designed to focus on the loss of specific jobs that result from business decisions of firms unrelated to the performance of particular workers.

There are some important issues of definition implicit in the design of this question that do not seem do have been addressed adequately in earlier work using the DWS. Job loss as measured in these data almost certainly does not represent all job loss about which we ought to be concerned. Specifically, the distinction between quits and layoffs is not always clear. Firms may wish to reduce employment without laying off workers, and they might accomplish this by reducing or failing to raise wages.[6] This can encourage workers (perhaps those least averse to the risk of a layoff due to having better alternatives) to quit. Other workers (perhaps those most averse to the risk of a layoff due to having worse alternatives) might be willing to continue to work at reduced wages. To the extent that these are important phenomena, the sample of individuals observed to be displaced by the definition used in the DWS is a potentially non-random sub-sample of "truly displaced" workers. The consequences of this are difficult to gauge, but it is worth noting that the ability of employers to offer wage decreases to their workers can be quite limited.

More importantly for analysis of "involuntary" job change is the fact that the DWS collects and reports information on at most one job loss for each individual. For workers with more than one job loss, this information refers to the longest job lost. Since it is possible (and not rare) for workers to have lost more than one job in a five-year (or three year) period, the DWS cannot be used to measure the total quantity of job loss. At best, it measures the number of workers who have lost at least one job in the relevant time period.[7]

[6] This is consistent with work by Jacobsen, Lalonde, and Sullivan (1993) who find that displaced workers suffer wage declines even before they are displaced.

[7] There also is the commonly noted problem of recall bias due to the likelihood that workers fail to report job loss that occurred long before the interview date. See Topel (1990) for evidence suggesting that recall bias is an important problem in the DWS. Farber (1993) also presents some evidence on this issue.

Defining the Rate of Job Loss

Even if it is agreed that the focus of the analysis is on those workers who have lost at least one job, there is the problem of how to compute the job loss rate. Consider some category of workers (defined by such characteristics as age, sex, and/or education). The DWS provides a direct measure of the number of workers in that category who have lost at least one job, and this is a reasonable numerator for the category-specific job loss rate. However, the pool of workers who were at risk to lose a job during the relevant time period (say the last three years) is not easily measurable. I take the straightforward approach of using the number of workers in the given category employed at the survey date as measuring the relevant pool, and this number serves as the denominator in the calculation of the job loss rate. This is likely to be a good approximation unless employment in the group is changing rapidly over the relevant time period (three years). All job loss rates presented in the next section are computed on this employment basis.

In section 5, I carry out multivariate analyses of the probability job loss using disaggregated data. I use a sample which consists of all all workers employed at the survey date and all workers who reported a job loss in relevant period (whether employed or not). This results in estimates analogous to the employed-based job-loss rates I present for specific groups.

Changes in Survey Design and Comparability: The Adjusted Job Loss Rate

There is an important problem of comparability that needs to be addressed. The 1984-92 DWS's used a five-year recall period while the 1994 DWS used a three-year recall period. Obviously, it does not make sense to compare displacement rates from a five-year period with displacement rates from a three-year period. It would seem reasonable to count only job loss in the most recent three years from the 1984-92 surveys. Workers who reported losing jobs four and five years ago would be counted as non-losers. The result would be a three-year job loss rate which could be compared with the three-year job loss rate computed directly from the 1994 DWS. However, this approach would certainly underestimate job loss in the most recent three years because some (probably non-negligible) fraction of the workers who lost a job four and five years ago lost at least one more shorter job in the most

recent three-year period. These subsequent job losses would not be counted. The result is that comparison of three-year job loss rates computed this way from the 1984-92 DWS's with three-year job loss rates computed directly from the 1994 DWS would not be valid.[8] The problem is that three-year job loss rates computed from the 1994 DWS include jobs lost in the last three years by individuals who lost longer jobs four and/or five years ago. In contrast, the three-year job loss rates computed from the 1984-92 DWS's do not include jobs lost in the last three years by individuals who also lost (longer) jobs four and/or five years ago.[9] Note that the change in recall period would not have been a problem in this regard had the one job loss allowed per worker been the most recent job loss rather than the longest job loss.

In order to get some idea of the magnitude of this problem and to provide the raw material for an adjustment factor that could be applied to the earlier DWS's, I examined data from the Panel Study of Income Dynamics (PSID) covering the period from 1968-85.[10] These longitudinal data allow me to calculate the fraction of workers who lost a job (report an involuntary job change) four or five years ago who subsequently lost a job in the relevant three-year window. To put this more precisely, let t represent the "current" period. I compute two fractions. First, I condition on losing a job in $t-4$ ($n = 1558$), and I compute the fraction of these workers who report losing at least one job in the $t-3$ to $t-1$ period. This fraction, denoted by δ_4, is computed to be 0.3017 based on the PSID. Second, I condition on losing a job in $t-5$ ($n = 1305$), and I compute the fraction of these workers who report losing at least one job in the $t-3$ to $t-1$ period. This fraction, denoted by δ_5, is computed to be is 0.2705 based on the PSID.

[8] In my early work using the DWS (Farber, 1993), I used two-year job loss rates computed from each of the DWS's from 1984-92. This suffers from the general problem of missing job loss because the question asks only for one job loss in a five-year period. However, since all five surveys considered in that study use the same five-year recall period, the downward bias in job loss rates would be of roughly similar magnitude.

[9] The recall period was shortened to three years in the 1994 DWS because the recall bias problem was felt to be too severe four and five years out (Topel, 1990). Although it probably it would have been better to have done the surveys from the beginning with a three-year recall period, the effect on comparability of changing from a five-year to a three-year recall period seems not to have been considered.

[10] This sample includes 49922 annual observations on 6184 individuals from the random subsample of the PSID. This sample is 86.9 percent male, due to the structure of the PSID.

This analysis suggests that a substantial fraction of workers who lost jobs four or five years ago lose jobs subsequently. These subsequent losses will not be picked up using a three-year job loss rate. While there is no perfect solution to this problem, in the analyses of job loss rates I present in this study, I use the statistics from the PSID to adjust upward the three-year job loss rates computed from the 1984-92 DWS's. Specifically, let r_{3i} represent the unadjusted three-year job loss rate for group i. This is computed naively as the fraction of respondents to the DWS who say that they have lost a job and who say that the loss occurred in one of the three years prior to the survey year. Since the 1994 DWS has only a three year recall window, this includes all respondents who report being displaced in that survey. The earlier DWS's have a five-year recall window, and respondents who report a displacement four or five years ago are counted as being not displaced.[11] The adjusted three-year job loss rate for group i, denoted by r^a_{3i}, is defined as

$$r^a_{3i} = r_{3i} + \delta_4 \rho_{4i} + \delta_5 \rho_{5i} \tag{1}$$

where ρ_{4i} and ρ_{5i} represent, respectively, the rate of job loss in $t-4$ and $t-5$ for group i.

Here is an illustration of those calculations and the effect on comparisons of three-year job loss rates from the 1994 DWS and earlier DWS's. The three-year job loss rate computed for 20-64 year olds from the 1994 DWS (covering job loss in the 1991-93 period) is 0.0865. This compares with an average three-year unadjusted job loss rate of 0.0639 computed directly from the 1984-92 DWS's (covering job loss in the 1981-91 period). The average job loss rate in the fourth years prior to the 1984-92 DWS's is 0.0138, and the average job loss rate in the fifth years prior to the 1984-92 DWS's is 0.0110. Using the repeat job loss fractions from the PSID, an adjusted three-year job loss rate is computed as the sum of the unadjusted three-year job loss rate plus the shares of the fourth-prior and fifth-prior years job loss rates that account for repeat job losers. Based on equation (1), this rate is computed to be $0.0639 + (0.3017)(0.0138) + (0.2705)(0.0110)$. The resulting adjusted three-year rate is 0.0711 which is substantially (11.2 percent) higher than the unadjusted

[11] The 1984-92 DWS's were conducted in January of the relevant years, and there are some workers who report being displaced in the survey month. I do not include these displacements. Thus, the three-year job loss rate refers to the three years prior to the survey year (e.g., 1981-83 for the 1984 DWS). The 1994 DWS was conducted in February and asked explicitly about job loss in calendar years 1991-93.

three-year rate. All three-year job loss rates and analyses of the incidence of job loss that I present in this study are adjusted using this technique and, necessarily, condition on the repeat job loss fractions computed from the PSID.[12]

There are several weaknesses in this approach. First, the repeat job loss fractions do not vary with worker characteristics or time. Unfortunately, the sample size in the PSID or other longitudinal data sets is not large enough to create group/time specific estimates of δ_4 and δ_5. Second, this adjustment is an upper bound in the sense that not all repeat job losses measured in the PSID were from shorter jobs than the "initial" job loss, as would be appropriate to make the job loss rates comparable with those computed from the 1994 DWS. Thus, δ_4 and δ_5 are upward biased estimates of the probability of repeat job loss from a *shorter* job. Third, there is a problem that occurs when adjusting reason-specific job loss rates. My adjustment procedure effectively assumes that job losses in the last three years subsequent to job loss four or five years ago are for the same reason as the initial job loss. For example, if a worker is displaced due to a plant closing in t-4, then the adjustment procedure assumes that there is some probability of another job loss due to plant closing but no probability of a job loss due to some other reason in the t-3 to t-1 time period. The evidence cited from the PSID does not speak to whether this is appropriate as the PSID does not have a breakdown of job loss by cause that is comparable to the DWS classification. However, given a reasonably stable distribution of job loss by reason, this is not likely to be a serious deficiency.

Overall, while the adjustment I propose is surely not perfect, it is difficult to think of a better feasible alternative.

Another Change in Survey Design: The Reason for Job Loss

A second problem results from an unfortunate decision made in the design of the 1994 DWS. In the 1984-92 DWS's, all individuals were asked if they lost a job in the last five years. If the response was yes, then the individual was asked the reason for the job loss. There were six allowed responses: 1) plant closing, 2) slack work, 3) position or shift

[12] In section 5, I describe the analogous procedure that I use to adjust the data for multivariate logit analyses of three-year job loss using disaggregated data.

abolished, 4) seasonal job ended, 5) self-employment ended, and 6) other. Regardless of the response to this question, all individuals who suffered a job loss were then asked a series of questions regarding the job they lost and their experience since the job loss. However, in the 1994 DWS, these follow-up questions were asked only of those individuals who report one of the first three reasons for their job loss (plant closing, slack work, and position or shift/abolished). This makes it impossible to learn much about the incidence or post-displacement costs of job loss from all causes in a way that is comparable over time.

In fact, plant closing and slack work were the largest categories of job loss in the 1984-92 DWS's. The analysis I present does not include loss of self-employment jobs and seasonal employment accounts for only a small fraction of all job loss. The "other" category is somewhat larger but poorly defined. No doubt this motivated the decision to follow up only the first three responses. However, as I show below, the distribution of job loss shifted substantially in the 1994 DWS. Substantially more of the job loss in the 1994 DWS is due to "position or shift abolished", and the "other" category has grown substantially as well. It is unfortunate that only limited analysis of job loss for "other" reasons is possible.

4. The incidence of Job Loss: Univariate Analysis

Information on rates of job loss is presented most informatively in graphical form, and the discussion here is organized around a series of figures. The numerical values underlying these figures are contained in the appendix to this paper.[13]

Figure 1 contains plots of adjusted three-year job loss rates computed from each of the six DWS's from 1984-94.[14] These stacked-bar graphs provide information on not only on overall job loss rates (the total height of each bar) but also on job loss rates by reason

[13] The appendix tables are numbered in parallel to the figures. These tables will be particularly useful if there is difficulty reading the figures in the small format of NBER Working Papers.

[14] All adjusted job loss rates from the 1984-92 DWS's are computed using equation (1) and the common values of δ_4 and δ_5 computed from the PSID. Group-specific values of the other rates required to compute the adjusted three-year job loss rates (r_{3i},ρ_{4i}, ρ_{5i}) are used. All counts are weighted using the CPS sampling weights.

(the shaded segments of each bar). Four classifications of reason are presented: 1) plant closing, 2) slack work, 3) position or shift abolished, and 4) other.[15]

There are several interesting features of the overall job loss rates presented in figure 1, some of which I noted in my earlier work using the DWS (Farber, 1993). The cyclical behavior of job loss is apparent at least through 1991. The 1981-83 job loss rate is relatively high at about 14 percent for men and 10 percent for women. This is a period with a slack labor market (average unemployment rate of 9 percent, rising from 7.6 percent in 1981 to 9.6 percent in 1983). The job loss rate then falls during the tightening labor market of mid-1980's (average unemployment rate 1983-89 of 6.9 percent, falling from 9.6 percent in 1983 to 5.3 percent in 1989). The job loss rate then rebounds to levels similar to the 1981-83 period as the labor market weakens after 1989 (with the unemployment rate rising from 5.3 percent in 1989 to 6.7 percent in 1991). As is clear from this comparison of unemployment rates, the latter recession is less severe than that in the early 1980's. Thus, it is somewhat surprising that the job loss rates are comparable in the two slack labor markets.

The slackness in the labor market continued in the 1991-93 period despite an ongoing modest recovery (unemployment rate rising to 7.4 percent in 1992 before declining to 6.8 percent in 1993). The job loss rate is higher in this period than even in the severe recession of the early 1980's. This is very preliminary evidence consistent with the view that there has been a secular decline in job security.

There are some interesting patterns to job loss by specific reason. First, the rate of job loss due to plant closings seems to be relatively constant while the rate of job loss due to slack work seems to have a substantial cyclical component. One (speculative) interpretation of this result is that plant closings are a response to secular declines in demand for specific products while job loss due to slack work is a typical response to cyclical fluctuations in demand where only marginal adjustments to output are required. Second, and more interesting from the standpoint of a secular increase in instability, is that the rates of job loss due to "position or shift abolished" and "other" were relatively

[15] The "other" category I use merges the "seasonal job ended", "self-employment ended", and "other" categories as coded in the DWS.

constant through 1989 but have risen substantially since. While ultimately I will not be able to say very much about the "other" category due to the previously-discussed design problem in the 1994 DWS, I will investigate the increase in job loss due to "position or shift abolished" in some detail.

The approach I will use to determine whether "position/shift abolished" is operationally a distinct category from "slack work" or "plant closing" is to investigate how the consequences of job loss varies by the stated reason. In particular, it might be, as some have argued, that there has been a movement to a new organization of the labor market characterized by weaker ties between workers and firms. To the extent that job loss due to these changes are classified as position abolished, it is important to understand the extent to which post-displacement reemployment probabilities or earnings are different for workers displaced due to having their position abolished than for workers displaced due to a plant closing or slack work.[16] But before turning to this analysis, I investigate displacement rates by reason across age, education, occupation, industry.

Rates of Job Loss by Age

Figure 2a contains stacked bar graphs of adjusted three-year job loss rates for men by year and reason for five age groups covering the range from 20-64. Job loss rates are highest for the youngest workers (20-24), and these workers show the "classic" cyclical pattern to their job loss. The 1991-93 job loss rates are lower than the 1989-91 job loss rates. All of the older age groups show job loss rates declining until 1987-89 and increasing thereafter. For men in the three groups comprising workers 35-64 years old, job loss rates are higher after 1989 than even in the deep recession of the early 1980's. Job loss rates have risen substantially for older men. While similar patterns are found for women, shown in figure 2b, there are much smaller distinctions across age groups and the changes over time are much smaller for women.

With regard to changes over time in the distribution of job loss by reason, the elevation in the rate of job loss in 1991-93 due to position abolished is substantial for both men and women and largest in the older age categories for men.

[16] The sort of adverse selection argument made by Gibbons and Katz (1991) also needs to be taken into account.

Rates of Job Loss by Education

Figures 3a and 3b contain stacked bar graphs of adjusted three-year job loss rates by year and reason for four educational categories for men and women respectively. Not surprisingly, job loss rates for both men and women are dramatically higher for less educated workers than for more educated workers. Job loss rates grew over the period for men in the higher educational categories and for women in all educational categories.

The increase in job loss in the higher educational categories is due to increase in loss for all reasons except plant closings. Rates of job loss rates due to slack work, position/shift abolished, and "other" reasons are up sharply. Job loss for other reasons is up in all educational categories. It is interesting that job loss due to position/shift abolished grew primarily and substantially in the higher educational categories (at least some college). This is consistent with reports of elimination of substantial numbers of white collar jobs in some large organizations.

Rates of Job Loss by Occupation

Given the changes in the incidence of job loss by education, it is useful to examine rates of job loss by occupational category. Figure 4 contains stacked bar graphs of adjusted three-year job loss rates by year and reason for five occupational categories.[17] Note that I can only examine job loss rates for displacement due to the three reasons of plant closing, slack work, and position/shift abolished. This is because the 1994 DWS contains no information on occupation on the lost job for workers displaced for other reasons. Since I do not know the occupation of workers who were not displaced during the period at which they were at risk of being displaced, I compute the three-year job loss rates assuming that the occupational distribution of employment does not change sharply over a three-year period. Specifically, the job loss rate for occupation j is computed as the ratio of the weighted count of workers who reported losing a job in occupation j to the weighted count of workers working currently (i.e., at the survey date) in occupation j.

[17] For conciseness, I combined the data for men and women in this and succeeding analyses.

The most obvious fact evident in figure 4 is that job loss rates are substantially higher for craftsmen, operatives, and laborers than for any of the other occupational categories. It is also the case that job loss rates for these workers are strongly cyclical and were significantly lower in 1991-93 than they were in 1989-91, contrary to the experience of workers in other occupations. Note also that the peak job loss rate for these blue-collar workers in the 1981-83 slack period was substantially higher than their peak job loss rate in the 1989-91 slack period. This reflects the fact that the earlier recession was a blue-collar manufacturing-based recession, while the later recession was concentrated more in other sectors.

Job loss rates for service workers remained relatively fixed over the sample period. The most secure occupation, professional and technical workers, shows a slight elevation in rates of job loss, starting from a low base, with most of the increase coming from an increase job loss due to "position abolished". Workers in sales and administration have somewhat higher rates of job loss after 1989, and much of the increase, particularly after 1991, is due to an increase in job loss due to "position abolished".

The most dramatic change in job loss rates occurs for managers and workers in sales and administration. Rates of job loss for managers show a substantial increase from their 1987-89 level, and job loss due to "position abolished" accounts for all (and more) of this increase. This is consistent with reports that corporations are reorganizing in ways that eliminate the jobs of significant numbers of managerial workers. It will be important to investigate the consequences of this job loss.

Rates of Job Loss by Industry

Figure 5 contains stacked bar graphs of adjusted three-year job loss rates by year and reason for six industrial categories. As with occupation, I do not know the industry of workers who were not displaced during the period at which they were at risk of being displaced, and I compute the three-year job loss rates assuming that the industrial distribution of employment does not change sharply over a three-year period. The job loss rate for industry j is computed as the ratio of the weighted count of workers who reported losing a job in industry j to the weighted count of workers currently working in industry j.

The secular increase found in overall job loss rates is not apparent in all industries. Specifically, in manufacturing and in non-professional services, job loss rates in the 1991-93 period are lower than in the 1989-91 period. However, there is a contrast between these industries in the composition of job loss. First, the overall rate of job loss in manufacturing is much larger than in other industries and the 1981-83 peak is much higher than the 1989-91 peak. Once again, this reflects the blue-collar manufacturing locus of the 1981-83 recession. In contrast, the 1981-83 peak in job loss in non-professional services is lower than the 1989-91 peak. Second, there has not been a large increase in job loss due to position/shift abolished in manufacturing (consistent with the finding for craftsmen, operatives, and laborers in figure 4), while there has been a substantial increase in job loss due to position/shift abolished in non-professional services. Overall job loss fell in the latter industry because of declines in job loss in the other two categories. Trade (wholesale and retail) has a steady rate of job loss across the three periods, aside from a dip in the 1983-85 period. Transportation, communications, and public utilities show the "standard" decline in job loss rates between 1981-83 and 1987-89 followed by an increase through 1991-93. But like manufacturing, job loss rates are lower in 1991-93 than they were in 1981-83.

Two exceptions to this pattern, one small and one large, are 1) professional services and 2) finance, insurance, and real estate. Professional services have *very* low rates of job loss which have increased little in absolute terms over time but are, nevertheless, proportionally much higher in 1991-93 than they were earlier. Much of this growth is due to "position abolished" but some is due to an increase in slack work as well. Finance, insurance, and real estate shows a much sharper change. Job loss rates in 1991-93 are more than double what they were in 1981-83. Much of this increase is due to an increase in "position abolished", but there has also been a substantial increase in job loss due to plant closings (a phenomenon not shared with any other industry). This might reflect the substantial consolidations that have taken place in financial market sectors such as banking.

5. The incidence of Job Loss: Multivariate Analysis

I carried out two parallel multivariate analyses of the incidence of job loss. The first analysis is a simple logit analysis of the probability of job loss as a function of age, edu-

cation, sex, race, and year.[18] The second analysis is a multinomial logit analysis of the probability of job loss by cause. There are five possible outcomes in this multinomial analysis: 1) no loss (the base outcome), and job loss due to 2) plant closing, 3) slack work, 4) position or shift abolished, and 5) other reason.

These analyses are carried out using a pooled sample of 388,018 workers from the 1984-94 DWS's. This sample consists of all workers in the DWS's who were employed at the survey date or who reported a job loss (whether employed at the survey date or not). In the simple logit model, the dependent variable indicates whether or not there was a job loss reported within the three-year period prior to the survey year. In the multinomial logit model, the dependent variable indicates which of the five possible outcomes occurred for that individuals during the three-year period prior to the survey year.

There is the problem, noted above, of the undercount of three-year job loss due to the five-year window used in the 1984-92 DWS's. The adjustment procedure outline above and presented formally in equation (1) yields an adjusted job loss rate for any well-defined group, but it is not directly useful in a disaggregated analysis. I implement a straightforward procedure, in the same spirit as the procedure used to adjust rates, to account for the understatement of job loss in the 1984-92 DWS's.

Recall that δ_4 is the fraction of those workers who lost a job in t-4 who report losing at least one more job in the t-3 to t-1 interval and δ_5 is the fraction of those workers who lost a job in t-5 who report losing at least one more job in the t-3 to t-1. These conditional fractions were estimated to be 0.3017 and 0.2705 based on evidence from the PSID. We can think of these fractions as probabilities of reported job loss in the relevant time period. Consider first the adjustment for repeat job loss among workers who lost a job four years ago. I create two observations for each individual in the 1984-92 DWS's who reports losing a job four years ago. I then assign one of the observations a weight of δ_4 times the CPS sampling weight. This weighted observation represents the expected number of repeat job losers among those who lost jobs four years ago. I assign the other observation a weight

[18] It would also be interesting to include measures of industry and occupation, but, as was discussed in the previous section, the DWS does not contain these measures 1) for non-displaced workers during the at-risk period and 2) for workers displaced for "other" reasons.

of $(1 - \delta_4)$ times the CPS sampling weight and I redefine the job loss variables as zero (no loss). This weighted observation represents the expected number of non-repeat job losers among those who lost jobs four years ago. The analogous procedure is used for workers who lost a job five years ago. Two observations are also created for each of these workers, and they are re-weighted appropriately using δ_5 rather than δ_4.[19]

Table 1 contains estimates of a simple logit model of the probability of job loss and a multinomial logit (MNL) model of job loss by cause pooling all six years of the DWS. The base group for the independent variables consists of 20-24 year old white males with 12 years of education in the 1991-93 time period. Since the probabilities of job loss are generally quite small, particularly by specific reason, the coefficients in the logit and MNL models can be interpreted as the proportional effect of the corresponding variable on the loss rate.[20]

The simple logit estimates show, not surprisingly, that older workers and more educated workers are less likely to be displaced. These differences are substantial, with college educated workers having a displacement rate less than half that of workers with a high school education. The estimates also suggest that females are 25 percent less likely to be displaced than males. With regard to movements over time. The overall job loss rates show a cyclical pattern through 1989, with substantially lower job loss rates in the tight labor market of the mid- to late-1980's, bracketed by higher job loss rates in the slack labor market of 1981-83 and 1989-91 (Farber, 1993). The interesting finding is that the period with the highest rate of job loss is the most recent period (1991-93). This was a period of modest recovery, and one might have expected job loss rates to fall somewhat. Instead, these rates are somewhat higher than either of the earlier slack periods.[21]

---

[19] This procedure increases the sample size from 377,816 to 388,018. Since the effective sample size is unchanged, standard errors computed from the inflated sample should be inflated by the fractional increase in the sample. However, since this increase is only 2.7 percent of the original sample size, I ignore this adjustment. It will be clear from the results that this is not a substantive problem.

[20] The quantity $\frac{\partial P}{\partial X_j} = \beta_j P(1 - P)$. If P is close to zero than $(1 - P)$ is close to one and $\frac{\partial P}{\partial X_j}$ can be approximated by $\beta_j P$. Thus, β_j is approximately $\frac{1}{P}\frac{\partial P}{\partial X_j}$.

[21] Precise comparisons should be made cautiously given the admittedly approximate adjustment used to make the three-year loss rates from the 1984-92 DWS's comparable with the three-year loss rate from the 1994 DWS.

The MNL estimates in table 1 show important contrasts in job loss rates by cause, most of which confirm the univariate results apparent in the figures. The base category is "no loss" so that all coefficients reflect the effect of the relevant variable on the probability of job loss for the particular reason relative to no loss. Older workers are relatively unlikely to lose jobs due to plant closings, slack work, or "other" reasons, but there is no clear age pattern in the probability of position/shift abolished. More educated workers are relatively less likely to lose jobs due to plant closing, slack work and relatively more likely to lose jobs due to having their position abolished. The MNL results confirm that females are less likely to lose jobs, and they are particularly less likely to lose jobs due to slack work. Once other demographics are controlled for, non-whites are relatively more likely to lose jobs, mostly due to slack work and other reasons. Non-whites are less likely to lose jobs due to position/shift abolished.

The time patterns are quite clear. The cyclical nature of job loss due to slack work is quite clear from the estimates of the time effects. Job loss due to slack work is much less common in the strong labor market of the mid- to late-1980's than it was in slack labor market of 1981-83 or after 1987. In contrast, job loss due to plant closings does not show strong variation across time. Perhaps the most interesting finding is that job loss due to position/shift abolished began to grow after 1987, and is significantly more common in the 1991-93 time period than earlier. The point estimates suggest that rate of job loss due to position/shift abolished was about 38 percent higher in the 1991-93 period than in the 1989-91 period and about 60 percent higher than in the mid-1980's. A similar pattern emerges for job loss for "other" reasons.

In order to examine how the indcidence of job loss has varied over time both by demographic group and by specific reason, I carried out separate analyses by DWS-year of the incidence of job loss. While the estimates results are not presented here, I summarize the main results.[22] There are several important results from this multivariate analysis. First, the advantage of older and more educated workers in having lower job loss rates than younger and less educated workers was smaller in the early 1990's than it was in the

[22] The logit and MNL estimates of job loss by year are available from the author.

early 1980's. Second, an important source of this decline in the age/education advantage in rates of job loss is an increase in relative rates of job loss due to position/shift abolished for older and more educated workers. Finally, college graduates have historically (i.e., since 1981-83) been relatively less likely than high school graduates to report job loss due to reasons other than position/shift abolished, where there was no significant difference. However, since 1989, college graduates have become significantly more likely than high school graduates to report job loss due to position/shift abolished.

This raises the interesting question of whether high school graduates and college graduates simply give different names to the same experience. Perhaps high school graduates are more likely to call their job loss slack work while college graduates are more likely to call their job loss position/shift abolished. I turn now to an analysis of the consequences of job loss by reported reason. If job loss due to position/shift abolished is, in fact, a different phenomenon than job loss due to other reasons, then this could show up as differences in post-displacement employment and earnings experience.[23]

6. Post-Displacement Employment

In this section, I examine how the probability of survey-date employment of workers varies with the reported reason for displacement controlling for other factors including sex, race, age, education, survey year, and the number of years since displacement and the survey date. In this analysis, I use data from all six DWS's on all workers who report being displaced for the "big three" reasons (plant closing, slack work, position/shift abolished) within three years from all six DWS's.[24]

[23] The fact that there are substantial numbers of workers at all education levels who report job loss for each reason in each year allows the identification of "reported reason" effects from the effects of other observables such as time and education.

[24] I do not use data on individuals who lose jobs for other reasons because the 1994 DWS does not ask these workers how long before the survey date they were displaced. As will be clear from the results, time since displacement is an important factor determining post-displacement employment probabilities.

Probability of Survey-Date Employment

Table 2 contains survey-date employment probabilities for displaced workers broken down by year and reason for displacement. In every period, workers displaced due to slack work have lower employment probabilities than do workers displaced due to a plant closing or position/shift abolished.[25] But there is no systematic difference in employment probabilities between those displaced due to plant closings and those displaced due to position/shift abolished. There is evidence of cyclical sensitivity of employment probabilities, with workers displaced during the slack periods (1981-83, 1989-91) having lower employment probabilities than workers in other periods. There is no evidence in this simple breakdown that employment probabilities have declined secularly, particularly for workers displaced due to position/shift abolished. In fact, employment probabilities for workers displaced for this reason are at their historical (at least since 1981) high in the 1991-93 period. I turn now to a multivariate analysis of survey-date employment.

The first column of table 3 contains estimates of a logit model of survey date employment that pools all years and controls for age, education, sex, race, reason for displacement, survey year, and years since displacement. Succeeding columns of the table contain separate estimates by survey year.[26] The point estimates can be divided by four to give an approximation to the marginal effect on the employment probability of a unit change in a variable.[27]

Most differences are fairly consistent over time. Females and non-whites are significantly less likely (9 percentage points for women and 15 percentage points for non-whites) to be working after displacement in all years. Workers displaced in the year immediately prior to the survey are substantially less likely (about 25 percentage points) to be working at the survey date than are workers who were displaced earlier. Not surprisingly, there are

[25] This is consistent with Gibbons and Katz's 1991 model of adverse selection.

[26] The hypothesis that the constrained model in the first column of table 3 is appropriate relative to the unconstrained model contained in the remaining columns of table 3 can be rejected (p-value = 0.0018).

[27] The quantity $\frac{\partial P}{\partial X_j} = \beta_j P(1-P)$. The average P in the sample is 0.644 (table 8), and $0.644(1-0.644) = 0.23$. Thus, dividing β_j by four is a good approximation to $\frac{\partial P}{\partial X_j}$.

persistent differences in employment probabilities by education category. More education implies higher post-displacement employment probabilities. For example using the pooled estimates, a worker with a college education is about 18 percentage points more likely to be employed at the survey date than an otherwise-comparable worker with a high school education. There is some evidence that a high education is less of an advantage in the latest period (1991-93) than in earlier years with the differential falling from about 20 percentage points in 1981-83 to about 15 percentage points in 1991-93.

The age differences become muted over time. Early in the period, older workers ($\geq$45 years) are substantially less likely to be employed at the survey date, perhaps due to early retirement. However, by the end of the period, only the oldest age category ($\geq$55 years) has a significantly lower employment probability, and all age categories become systematically more likely to be employed post-displacement relative to the youngest age category (20-24 years). Further investigation (not presented here) shows that this is *not* due to workers in the youngest category becoming systematically less likely to be employed. In fact, the employment rate of 20-24 year old displaced workers in 1991-93 is about the same as the employment rate of 20-24 year old displaced workers in 1981-85.

Finally, consider the effect of the reported reason for job loss. Consistent with the simple tabulations, workers displaced due to slack work are significantly less likely than workers displaced for the other reasons to be employed at the survey date. However, the relative effect of job loss due to position/shift abolished changes over time. There is no significant difference in employment probabilities between those who lost jobs due to position/shift abolished and those who lost jobs due to a plant closing in the first and last time periods (1981-83 and 1991-93). However, victims of position/shift abolished paid an increasing penalty in the form of lower employment probabilities (relative to plant closing victims) in the 1983-91 time period. On balance, there is evidence that workers who lost jobs due to plant closings are intermediate in their post-displacement employment probabilities between job losers due to plant closing and job losers due to slack work. However, there is considerable time variation in the relative effects of reason for displacement on employment probabilities.

While the estimates are not presented here, I also examined how the probability that a worker has held at least one job since displacement (the probability of reemployment)

varies with the reported reason for displacement controlling for other factors. This analysis utilized the response to a DWS question asking for the number of jobs held since displacement. Workers who reported holding at least one job since displacement or are employed at the survey date were classified as having "ever worked" since displacement.[28] There only substantive difference between the results of this analysis and those I report in earlier in this section for survey-date employment is that this is little evidence of diminution of the relationship between reemployment probabilities and the age and education categories that I found for survey-date employment probabilities.

Is Position/Shift Abolished Distinct with Regard to Post-Displacement Employment Probabilities?

This analysis was partially motivated by the question of whether ndisplacement due to position/shift abolished is a distinct phenomenon compared with displacement for other reasons. The results are mixed on this question. In some time periods, works displaced due to position/shift abolished have post-displacement employment probabilities that are no different than workers displaced due to plant closing. But in other time periods (1987-91), victims of position/shift abolished fare worse than plant-closing victims. What is clear is that workers who lose jobs due to slack work fare worse in post-displacement employment experience than do workers displaced for other reasons. However, the difference in employment experience between victims of position/shift abolished and victims of slack work is not statistically significant in the 1987-91 time period. Finally note, despite its increasing incidence, that there is no evidence that any negative effect of displacement due to position/shift abolished has increased over time. In fact, based on the simple tabulations in table 2, survey-date employment probabilities for workers displaced due to position/shift abolished are higher in the 1991-93 period than in any earlier period.

[28] This analysis used the same data as the analysis of survey-date employment status with the exception that the 1984 DWS cannot be used because it does not contain information on number of jobs held. Thus, this analysis covers the 1983-93 period.

7. Post-Displacement Full-Time / Part-Time Status

It is well known that part-time workers have lower wage rates than do full-time workers. The DWS's collect information on part-time status (35 hours per week) on the lost job, and it is straightforward to compute part-time status on post-displacement jobs from the standard CPS hours information. The top panel of table 4 contains a breakdown of the fraction of workers reporting being displaced from a part-time job by year and reason for displacement. The bottom panel of the table contains a similar breakdown for the fraction of employed workers reporting working part-time at the survey date. Note that there is an important problem of comparability on part-time employment at the survey date. The new survey instrument used in the 1994 CPS asks a different battery of questions about hours of work on the current job, and this has the effect of raising the fraction of workers reporting they are currently working part time (Polivka and Miller, 1994).[29] Thus, the seemingly higher fraction of workers reporting working part-time in 1994 likely does not represent a real change.[30]

The striking fact is that while about 11 percent of displaced workers were displaced from part-time jobs, fully 25 percent of displaced workers employed at the survey date are employed in part-time jobs. Thus, an obvious important consequence of job loss is the inability to find a new full-time job. Some of this might be the result of individual labor supply decisions. This is consistent with the fact that currently-employed workers who were displaced from part-time jobs have a much higher probability of working part-time at the survey date than do workers who were displaced from full-time jobs (51.7 percent versus 22.6 percent).

Another fairly consistent result apparent from the breakdowns in table 4 is that workers displaced due to slack work are generally more likely to be working part-time after displacement despite generally being less likely to have worked part-time on the lost job.

Following the pattern of the earlier analysis, table 5 contains estimates of logit models of the probability of part-time employment among workers employed at the survey date.

[29] The survey question regarding whether the lost job was part-time is unchanged in the 1994 DWS.

[30] In the multivariate analysis presented below, I assume the change in survey design affects only the year-specific intercept.

The first column of the table contains estimates pooled across years, and the remaining columns contain separate estimates of each DWS.[31] Once again, the coefficients can be divided by approximately 5 to derive the effect of a unit change in the relevant variable on the probability of part-time employment. Not surprisingly, the strongest effect on the probability of part-time employment comes from part-time work on the lost job. This could reflect labor supply preferences or some other unmeasured characteristic that makes full-time work difficult to get for some workers.

Females and non-whites are significantly more likely to be working part-time after displacement. This is after controlling for part-time status on the lost job so that this result is unlikely to be primarily the result of preferences. Compared with the youngest workers, prime-age workers (age 25-54) are less likely to be working part-time. The oldest workers (age 55-64) are more likely to be working part-time, perhaps reflecting a move toward partial retirement. This is consistent with the finding of lower post-displacement employment probabilities for these workers documented in tabl 3. The probability of working part-time is strongly inversely related to education, with college graduates about 8 percentages points less likely than high school graduates to be working part-time (using the pooled estimate).

The estimates suggest that workers often take a part-time job temporarily, perhaps until they can find a full-time job. Workers displaced two and three years ago are significantly less likely (about five percentage points using the pooled estimates) to be employed part-time than are workers displaced in the year prior to the survey.

Given the lack of comparability of the data on part-time status between the 1984-92 DWS's and the 1994 DWS, I do not draw any substantive inference from the relatively high part-time rate in 1991-93. This was expected given the effect that the CPS redesign had on reported survey-date hours (Polivka and Miller, 1994).

[31] The hypothesis that the constrained model in the first column of table 5 is appropriate relative to the unconstrained model contained in the remaining columns of table 5 can be rejected (p-value < 0.00001).

Is Position/Shift Abolished Distinct with Regard to Full-time / Part-Time Status?

Finally, consider the differences in the part-time rate by reason for displacement. On average, workers displaced due to slack work are more likely to be working part-time at the survey-date than are workers displaced due to a plant closing. However, workers displaced due to position/shift abolished do not have a part-time rate that is significantly different than either other group of displaced workers.

8. The Change in Earnings

I examine the difference in real weekly earnings between the post-displacement job and the job from which the worker was displaced.[32] This is a straightforward measure, but it only gets at a part of the effect of displacement on earnings. This is so for several reasons.

First, it is appropriate to ask what earnings would have been had the worker not been displaced. In order to answer this question, the earnings change over the same period for a control group of non-displaced workers is required. While I do not provide such a control group here, I did so in an earlier study (Farber, 1993) using data from the CPS outgoing rotation groups. I found that, on average, the real weekly earnings of non-displaced full-time workers increased by more than four percent, on average, over the two-year period prior to the DWS survey dates. On this basis, the average decline in real weekly earnings for displaced workers I report in this section is a substantial understatement of the effect of displacement on earnings.

Second, as I showed above, there are strong negative effects of job loss on hours of work. In the analysis of earnings change, I generally control for part-time status on the survey-date job, despite that fact that it is another outcome that is strongly related to displacement. I do this, because data on the hourly wage on the lost job are not available, and including an indicator of part-time status provides a crude adjustment for hours worked. But when considering the overall effect of displacement on earnings, there is not only the direct wage effect but also the indirect negative effects through the increased probability

[32] Earnings are deflated by the 1982-84=100 consumer price index (CPI). The CPI in the reported year of displacement is used to deflate earnings on the old job. The CPI for January of the survey year is used to deflate current earnings.

of part-time work measured in the previous section and the lower wage rate earned by part-time workers.

Third, a similar issue arises because I do not account explicitly for the fact that the analysis of earnings, of necessity, includes only displaced workers who are employed at the survey date. But a part of the effect of job loss on earnings comes from the fact that a substantial fraction of displaced workers are *not* employed at the survey date.[33] Thus, when considering the overall effect of displacement on earnings, the direct wage effect needs to be augmented with the non-employment effect as well as with the part-time effect.[34]

Table 6 contains average changes in log real weekly earnings between the lost job and the survey-date job broken down by survey year and reason for displacement. On average, real weekly earnings on the post-displacement job are about 14 percent lower than pre-displacement earnings. An important part of the earnings losses suffered by displaced workers is due to the substantial incidence of part-time employment after displacement. This was documented directly in table 4. In order to focus on full-time workers, table 7 contains average changes in log real full-time weekly earnings between the lost job and the survey-date job broken down by survey year and reason for displacement. These changes are computed using the subsample of displaced workers who were displaced from full-time jobs and are employed at the survey date on another full-time job. The earnings losses are substantial, even for these workers. The average decline in weekly earnings is about 9 percent for currently full-time workers displaced from full-time jobs.

There is some variation over time in average earnings loss, both overall and for full-time workers. Historically, earnings loss was greater in the slack labor markets (1981-83 and 1989-91) than in the intervening tighter labor market (1983-89). However, earnings remained roughly constant between the slack labor market of 1989-91 and the mildly-stronger labor market of 1991-93. The data in table 6, for all reemployed displaced workers, suggests that this is due to an increase in earnings loss for workers displaced due to plant

[33] About 35 percent of displaced workers, on average, are not employed at the survey date. See table 2 and the related discussion.

[34] Not considered here are the earnings losses associated with any period of unemployment suffered by displaced workers who ultimately find employment.

closing that is offset by a decline (expected in a tightening labor market) in earnings loss for workers displaced due to slack work. Earnings loss for workers displaced due to position/shift abolished remained roughly constant. The general pattern for reemployed full-time workers, based on the data in table 7, is only slightly different. The difference is that the earnings loss suffered by full-time workers displaced due to position/shift abolished who are reemployed on a full-time job seems to have been growing secularly since 1983-85.[35]

Table 8 contains estimates of a regression of the difference in real log weekly earnings between the survey date and the pre-displacement job for employed workers, both pooled across years and separately for each year. These models fit unusually well for wage-change regressions. The reason is artificial. Most of the explanatory power is coming from the two part-time status variables, and these simply adjust crudely for hours on the old and new jobs when accounting for weekly earnings.[36] This analysis confirms the standard finding (e.g., Podgursky and Swaim, 1987; Kletzer, 1989; Topel, 1990; de la Rica, 1992) that older workers suffer substantially larger wage declines than younger workers. The results also show that the earnings loss declines with education. Sex and race differences are not significant. There does not seem to be any relationship between time since displacement and the change in earnings.

Is Position/Shift Abolished Distinct with Regard to Post-Displacement Earnings and the Change in Earnings?

There are some interesting findings regarding the relationship between the reported reason for displacement and the change in earnings. Workers displaced due to slack work or position/shift abolished suffer larger wage declines (about 4 percentage points) than do workers displaced due to plant closing. There is no significant difference in earnings change between workers displaced due to slack work and workers displaced due to position/shift

[35] The difference between the earnings loss patterns for victims of position/shift abolished in tables 6 and 7 is simply that the average earnings loss in table 6 is roughly constant between 1989-91 and 1991-93 while the point estimate of the loss in table (full-time to full-time) grew by 4 percentage points. However, this growth is not significantly different from zero.

[36] As noted above, the part-time variables also capture unobservable fixed worker characteristics associated with earnings.

abolished. These relationships are fairly constant over time, with one exception. The estimates suggest that workers displaced due to slack work in the 1991-93 period fare relatively better than workers displaced for other reasons in the same time period. This is in contrast to all earlier periods, where it is found that that victims of slack work fare worse than other job losers.

9. Post-Displacement Job Stability

There is only limited information in the DWS on employment history following displacement. The 1986-1994 DWS's contain information on the number of jobs held since displacement, and I analyze these data for the set of workers who have held at least one job since displacement.[37] There are some important issues regarding interpretation of these data. It may be that having held fewer jobs denotes stability and that this is a positive attribute. On the other hand, it may be that part of the search process for a good job or worker-employer match involves experimentation and subsequent job change.[38] Another problem of interpretation has to do with multiple job holding at a point in time. Individuals might count part-time "second" jobs as additional jobs held or they might count only "main" jobs. My interpretation of these data as measuring job stability is more natural for data that refer to the number of main jobs.

The sample I use for this analysis consists of reemployed workers displaced due to a plant closing, slack work, or position/shift abolished within three years of the 1986-1994 DWS's. Pooling across years, 65.8 percent of reemployed workers had held only one job by the survey date, 21.6 percent had held two jobs, 7.5 percent had held three jobs, and 5.1 percent had held four or more jobs. An appropriate way to analyze such ordinal data is to use an ordered response model such as ordered probit. I conducted some preliminary analyses comparing the results using an ordered probit to results from a simple bivariate

[37] Note that I cannot account for time spent not-employed. This is for two reasons. First, the question on time unemployed asked in the DWS has changed in an important way so that the response is not comparable. Additionally, the 1994 DWS data on time unemployed is not usable due to problems with the administration of the survey. Second, there is no way to account for time out of the labor force.

[38] See Jovanovic (1979) for a model of matching in the labor market with this implication. Farber (1994) presents evidence on the hazard of job loss consistent with this model.

model of the probability of having held more than one job (versus holding only one job). The results were qualitatively identical, and, for ease of exposition, I present results from the simple bivariate logit model here.[39]

Table 9 contains a breakdown by survey-year and reason for displacement of the fraction of reemployed workers who have held more than one job since displacement. Overall and in all but one year, workers displaced by a plant closing have a higher probability of multiple job holding indicating less stable post-displacement work histories. There is no difference in the probability of multiple job holding between those displaced due to slack work and those displaced due to position/shift abolished.

These findings might be due to differences in the characteristics of workers displaced for different reasons, and, in order to investigate this, table 10 contains logit analyses of the probability of holding more than one job. The first column of the table contains estimates pooled across years, and the remaining columns contain separate estimates for each DWS. The coefficients can be divided by approximately 4 to derive the effect of a unit change in the relevant variable on the probability of part-time employment. Not surprisingly, the strongest effect on the probability of holding only one job since displacement comes from the time since displacement. More years between displacement and the survey date implies a higher probability of having held more than one job. With regard to demographic characteristics, older workers and workers with a college education are substantially less likely to have held more than one job since displacement, suggesting that these workers have more stable post-displacement work histories. There is no significant relationship between stability and sex or race. Neither does stability seem to vary systematically by survey-year.

With regard to the reported reason for job loss, no systematic differences are found in stability by reason. Thus, the relatively low stability found in table 9 for individuals displaced due to a plant closing is a compositional effect due to the different demographic characteristics of workers displaced for different reasons.

[39] I have carried out all of the analyses presented here using the ordered probit model, and the results are substantively identical. Note that an bivariate probit model is a special case of the ordered probit model where there are only two ordered categories (one job, more than one job) and compared with four ordered categories (one job, two jobs, three jobs, four or more jobs). As is well known, the bivariate logit model I use here yields virtually the same substantive results as the bivariate probit model.

Following the pattern of the earlier analyses, the remaining columns of table 10 contain separate logit analyses by survey-year of the probability of holding more than one post-displacement job. No systematic variation over time is found in the estimated relationship. In fact, the hypothesis that the logit probability model does not vary over time (other than through survey-year dummy variables) cannot be rejected (p-value = 0.21).[40]

10. Self Employment as a Response to Displacement

Some have argued that an increasingly common response to job loss, particularly among more educated workers, is to become self-employed. For example, workers can become consultants, sometimes for the firm from which they were displaced. In this section, I investigate the likelihood of self-employment among displaced workers.[41] Note that my sample of displaced workers does not include workers who reported losing jobs on which they were self-employed, so that all of these workers have a history of working for others. Among the displaced workers, 7.3 percent were self-employed at the survey date. As a comparison, 8.5 percent of workers in the DWS's who were not displaced were self-employed at the survey date. Given that the displaced workers I examine have no immediate history of self-employment (as they were displaced from employment by others), this suggests that self-employment is a substantial response to displacement.

Table 11 contains a breakdown by survey-year and reason for displacement of the fraction of workers employed at the survey date who are self-employed. There is no evidence in this table of a secular increase in self-employment. The self-employment rate was relatively high both in the earliest and latest periods studied. While not completely consistent over time, self-employment rates were highest for workers displaced due to position/shift abolished and lowest for workers displaced due to plant closings. These differences by reason are relatively small.

[40] This is based on a likelihood-ratio test of the constrained model in the first-column of table 20 compared with the unconstrained model in the remaining columns of the table.

[41] Prior to 1989 the CPS codes workers who respond that they are self-employed in an incorporated business as not self-employed. Only those who report that they are self-employed in an unincorporated business are counted as self-employed. In 1989 and later years, a distinction is made between those self-employed in an incorporated business and those self-employed in an unincorporated business. In order to maintain consistency over time, my analysis of self-employment counts as self-employed only those workers who report that they are self-employed in an unincorporated business.

Table 12 contains logit analyses of the probability among employed individuals of self-employment at the survey date. The first column of the table contains estimates pooled across years, and the remaining columns contain separate estimates for each survey year. Given the low probability of self-employment, the logit coefficients can be interpreted as approximately the proportional effect effect of a unit change in the relevant variable on the probability of part-time employment. The results are fairly straightforward. Women and non-whites are substantially less likely to become self-employed after displacement, while workers with a college education are substantially more likely to become self-employed. As the simple breakdown showed, there does not seem to have been a secular increase in the probability of self-employment. In fact, the 1981-83 period had the highest estimated rate of self-employment. The rate was lowest in the middle period. With regard to the reported reason for job loss, no systematic differences are found in the self-employment rate by reason.

Following the pattern of the earlier analyses, the remaining columns of table 12 contain separate logit analyses by survey-year of the probability of self-employment. The relationships turn out not to vary significantly over time. The hypothesis that the logit probability model does not vary over time (other than through survey-year dummy variables) cannot be rejected (p-value = 0.51).[42]

11. Concluding Remarks

The results are fairly clear cut. Rates of job loss are up relative to the standard of the last decade. And the increase has not been uniform. Older and more educated workers, while continuing to have lower rates of job loss than younger and less educated workers, have seen their rates of job loss increase more than those of other groups. There is also interesting temporal variation in job loss rates by reported reason. The rate of job loss due to plant closing has been fairly steady over time. In contrast, job loss due to slack work has a substantial cyclical component. Job loss due to position/shift abolished reasons has

[42] This is based on a likelihood-ratio test of the constrained model in the first-column of table 12 compared with the unconstrained model in the remaining columns of the table.

been increasing in recent years, largely among more educated workers. Finally, job loss for "other" reasons has been generally increasing.

The costs of job loss are dramatic. Displaced workers have a substantial probability of not being employed at the survey date after displacement (about 36 percent on average). This probability is substantially smaller for workers with a college education than for workers with a high-school education (22 percent vs. 38 percent).

A substantial fraction of those reemployed are working part-time after displacement (about 25 percent on average compared with only 11 percent working part-time prior to displacement). The college educated are significantly less likely than high school graduates to be working part-time (19 percent versus 26 percent), despite the fact about 11 percent of both educational groups are working part-time on the pre-displacement job.

The decline in real weekly earnings between the pre-displacement job and the post-displacement job averages about 14 percent for all reemployed displaced workers and about 9 percent for workers displaced from full-time jobs who are reemployed on full-time jobs. The college educated suffer smaller proportional earnings declines on average, even accounting for full-time/part-time status. Among those displaced from full-time jobs who are re-employed full-time, the average wage decline is 6.2 percent for college graduates and 8.6 percent for high-school graduates.

Finally, self-employment (in an unincorporated business) appears to be an important response to displacement. The self-employment rate is fully 7.3 percent among currently employed workers who were displaced from a job where they were employed by others. This compares with a baseline self-employment rate of 8.5 percent in the workforce as a whole. College graduates are more likely than high-school graduates to be self-employed after displacement than are high-school graduates (10.1 percent vs. 6.4 percent). In addition, older workers are more likely than younger workers to be self-employed after displacement.

Clearly job loss adversely affects workers earnings in many ways. Employment probabilities are reduced. There is an increased probability of working part-time, yielding lower earnings both through shorter hours and lower wage rates. And even those reemployed full-time suffer earnings losses on average.[43] On the other hand, there is fairly strong evidence

[43] It is also worth noting that the adverse effects, while substantial for all workers, are larger for the less

that some of the costs of displacement are temporary. The probability-of-employment penalty and the part-time-employment penalty for displacement decline with time since displacement. However, there is little evidence that the full-time earnings penalty for displacement narrows with time since displacement. An additional cost of job loss that is not accounted for in this framework is earnings loss during the period of non-employment before a new job is located.

It is clear that the costs of job loss are counter-cyclical, with larger costs of job loss in slack labor markets and relatively smaller costs in tight labor markets. Post-displacement employment probabilities and the probability of full-time employment among reemployed workers are both lower in slack labor markets. However, there is no evidence that the costs of job loss have increased systematically over time.

One of the goals of this analysis was to investigate how the incidence and consequences of job loss varied by stated reason for the loss. In particular, I wanted to determine whether job loss due to position/shift abolished could be characterized as a distinct phenomenon from job loss due to slack work and plant closing. While the evidence is clear that the rate of job loss due to position/shift abolished has increased, particularly for more educated workers, there is no consistent evidence that job loss due to position/shift abolished has more (or less) serious consequences than job loss for other reasons.

In conclusion, the rate of job loss has increased in recent years, and job loss for all reasons imposes substantial costs on the affected workers. There is no evidence either that the consequences of job loss have changed systematically or that the consequences of job loss specifically due to position/shift abolished are fundamentally different from other job loss in ways that would require a policy response other than that which might be required to deal with job loss generally.

---

educated in each dimension.

12. References

de la Rica, Sara. "Displaced Workers in Mass Layoffs: Pre-Displacement Earnings Losses and the Unions Effect," Working Paper No. 303, Industrial Relations Section, Princeton University, June 1992.

Diebold, Francis X., David Neumark, and Daniel Polsky. "Job Stability in the United States," National Bureau of Economic Research, Working Paper No. 4859, September 1994.

Diebold, Francis X., David Neumark, and Daniel Polsky. "Comment of Kenneth A. Swinnerton and Howard Wial, 'Is Job Stability Declining in the U.S. Economy?'," *Industrial and Labor Relations Review* 49 January 1996 : pp. 348-352.

Farber, Henry S. "The Incidence and Costs of Job Loss: 1982-91," *Brookings Papers on Economic Activity: Microeconomics*, (1993,1), 73-119.

Farber, Henry S. "The Analysis of Inter-Firm Worker Mobility," *Journal of Labor Economics* 12 (October 1994): pp. 554-593.

Farber, Henry S. "Are Lifetime Jobs Disappearing: Job Duration in the United States, 1973-93," Working Paper No. 341, Industrial Relations Section, Princeton University, January 1995.

Gardner, Jennifer M. "Worker Displacement: A Decade of Change," *Monthly Labor Review* 118 (April 1995): pp. 45-57.

Gibbons, Robert and Lawrence F. Katz. "Layoffs and Lemons," *Journal of Labor Economics* 9 (October 1991): pp. 351-380.

Jacobsen, Louis, Robert Lalonde, and Daniel Sullivan. "Earnings Losses of Displaced Workers," *American Economic Review* 83 (September 1993): pp. 685-709.

Hall, Robert E. "The Importance of Lifetime Jobs in the U.S. Economy," *American Economic Review* 72 (September 1982): pp. 716-724.

Jovanovic, Boyan. "Job Matching and the Theory of Turnover," *Journal of Political Economy* 87 (October 1979): pp. 972-990.

Kletzer, Lori G. "Returns to Seniority after Permanent Job Loss," *American Economic Review* 79 (June 1989): pp. 536-543.

Neal, Derek. "Industry-Specific Capital: Evidence from Displaced Workers," *Journal of Labor Economics* 13 (October 1995): pp. 653-677.

Parent, Daniel. "Industry-Specific Capital: Evidence from the NLSY and the PSID," Working Paper No. 350, Industrial Relations Section, Princeton University, November 1995.

Podgursky, Michael and Paul Swaim. "Job Displacement Earnings Loss: Evidence from the Displaced Worker Survey,"" *Industrial and Labor Relations Review* 41 (October 1987): pp. 17-29.

Polivka, Anne E. and Stephen M. Miller. "The CPS After the Redesign: Refocusing the Lens," U.S. Department of Labor, Bureau of Labor Statistics, mimeo, December 1994.

Rose, Stephen J. "Declining Job Security and the Professionalization of Opportunity," National Commission for Employment Policy, Research Report 95-04, April 1995.

Swinnerton, Kenneth and Howard Wial. "Is Job Stability Declining in the U.S. Economy?" *Industrial and Labor Relations Review* 48 January 1995 : pp. 293-304.

Swinnerton, Kenneth and Howard Wial. "Is Job Stability Declining in the U.S. Economy? Reply to Dieblod, Neumark, and Polsky" *Industrial and Labor Relations Review* 49 January 1996 : pp. 352-355.

Topel, Robert. "Specific Capital and Unemployment: Measuring the Costs and Consequences of Job Loss," *Carnegie Rochester Conference Series on Public Policy* 33 (1990): pp. 181-214.

Ureta, Manuelita. "The Importance of Lifetime Jobs in the U.S. Economy, Revisited," *American Economic Review* 82 (March 1992): pp. 322-335.

TABLE 1: Logit and Multinomial Logit Analysis of Job Loss, 1981-93

	Simple Logit		Multinomial Logit		
Variable	Job Loss	Pl Close	Slack Wk	Pos Abol	other
constant	-1.631	-3.010	-2.513	-4.074	-3.061
	(0.02)	(0.03)	(0.03)	(0.06)	(0.04)
age25-34	-0.013	0.046	-0.040	0.224	-0.165
	(0.02)	(0.03)	(0.03)	(0.05)	(0.04)
age35-44	-0.242	-0.129	-0.400	0.173	-0.383
	(0.02)	(0.03)	(0.03)	(0.05)	(0.04)
age45-54	-0.446	-0.292	-0.719	0.149	-0.624
	(0.02)	(0.03)	(0.03)	(0.06)	(0.04)
age55-64	-0.479	-0.229	-0.889	0.095	-0.624
	(0.02)	(0.04)	(0.04)	(0.06)	(0.05)
ed<12	0.272	0.311	0.325	-0.277	0.335
	(0.02)	(0.02)	(0.03)	(0.06)	(0.03)
ed13-15	-0.135	-0.172	-0.272	0.243	-0.063
	(0.01)	(0.02)	(0.02)	(0.04)	(0.03)
ed≥16	-0.584	-0.788	-0.926	0.217	-0.379
	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)
female	-0.247	-0.105	-0.578	-0.016	-0.121
	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)
nonwhite	0.096	0.009	0.198	-0.173	0.225
	(0.02)	(0.03)	(0.02)	(0.05)	(0.03)
1981-83	-0.068	0.108	0.199	-0.471	-0.559
	(0.02)	(0.03)	(0.03)	(0.05)	(0.04)
1983-85	-0.256	0.054	-0.174	-0.553	-0.677
	(0.02)	(0.03)	(0.03)	(0.05)	(0.04)
1985-87	-0.324	0.025	-0.404	-0.643	-0.518
	(0.02)	(0.03)	(0.03)	(0.05)	(0.04)
1987-89	-0.424	-0.081	-0.555	-0.702	-0.564
	(0.02)	(0.03)	(0.03)	(0.05)	(0.04)
1989-91	-0.069	0.150	0.063	-0.375	-0.370
	(0.02)	(0.03)	(0.03)	(0.04)	(0.04)
log L	-123119.8	-171927.3			
n	388018	387948			

Note: The simple logit analysis is of the three-year probability of job loss. The multinomial logit analysis is of the probability of job loss by stated reason. The base category for the outcome is "no loss". The data prior to the 1994 DWS are adjusted as described in the text to account for the change in recall period from five years to three years. All analyses are weighted by the adjusted CPS sampling weights. The base categories of the independent variables are 20-24 year old white males with 12 years of education in the 1991-93 time period. Standard errors are in parentheses.

TABLE 2: Survey-Date Employment Status, by Year and Reason

Fraction Employed
[cell size]

Year	Plant Close	Slack Work	Pos Abol	All
1981-83	.630	.537	.669	.589
	[2076]	[2507]	[643]	[5226]
1983-85	.687	.575	.669	.639
	[1904]	[1658]	[595]	[4157]
1985-87	.734	.604	.699	.682
	[1865]	[1382]	[567]	[3814]
1987-89	.744	.646	.716	.706
	[1685]	[1123]	[519]	[3327]
1989-91	.684	.513	.639	.604
	[2059]	[2095]	[733]	[4887]
1991-93	.685	.623	.723	.669
	[1773]	[1851]	[1116]	[4740]
All Years	.693	.575	.689	.644
	[11362]	[10616]	[4173]	[26151]

Note: Weighted by CPS sampling weights. The numbers in brackets are sample sizes.

TABLE 3: Logit Analysis of Survey-Date Employment Status, 1981-93

Variable	Pooled	1981-83	1983-85	1985-87	1987-89	1989-91	1991-93
constant	0.557	0.532	0.575	0.649	0.614	0.196	0.352
	(0.06)	(0.10)	(0.11)	(0.12)	(0.14)	(0.11)	(0.12)
age25-34	0.099	-0.011	-0.050	0.082	0.079	0.198	0.296
	(0.04)	(0.08)	(0.10)	(0.11)	(0.13)	(0.10)	(0.11)
age35-44	0.016	-0.119	-0.053	-0.091	0.051	0.152	0.173
	(0.04)	(0.10)	(0.11)	(0.12)	(0.14)	(0.10)	(0.11)
age45-54	-0.235	-0.351	-0.310	-0.367	-0.267	-0.029	-0.089
	(0.05)	(0.11)	(0.13)	(0.14)	(0.15)	(0.11)	(0.12)
age55-64	-0.880	-1.297	-0.945	-0.980	-0.847	-0.532	-0.677
	(0.06)	(0.12)	(0.14)	(0.15)	(0.17)	(0.13)	(0.14)
ed<12	-0.461	-0.470	-0.596	-0.196	-0.394	-0.516	-0.546
	(0.04)	(0.08)	(0.09)	(0.10)	(0.11)	(0.09)	(0.10)
ed13-15	0.333	0.208	0.246	0.465	0.499	0.403	0.254
	(0.04)	(0.08)	(0.09)	(0.10)	(0.11)	(0.08)	(0.08)
ed≥16	0.739	0.808	0.762	0.830	0.647	0.832	0.594
	(0.05)	(0.11)	(0.12)	(0.13)	(0.13)	(0.10)	(0.10)
female	-0.352	-0.488	-0.340	-0.401	-0.354	-0.220	-0.353
	(0.03)	(0.06)	(0.07)	(0.08)	(0.08)	(0.07)	(0.07)
nonwhite	-0.583	-0.880	-0.570	-0.415	-0.417	-0.625	-0.519
	(0.04)	(0.09)	(0.10)	(0.10)	(0.11)	(0.09)	(0.09)
slack work	-0.438	-0.447	-0.384	-0.564	-0.324	-0.589	-0.258
	(0.03)	(0.07)	(0.08)	(0.08)	(0.09)	(0.07)	(0.08)
pos abol	-0.123	0.098	-0.135	-0.208	-0.234	-0.389	0.090
	(0.04)	(0.10)	(0.11)	(0.11)	(0.12)	(0.10)	(0.09)
1981-83	-0.304	-----	-----	-----	-----	-----	-----
	(0.04)						
1983-85	-0.055	-----	-----	-----	-----	-----	-----
	(0.05)						
1985-87	0.079	-----	-----	-----	-----	-----	-----
	(0.05)						
1987-89	0.216	-----	-----	-----	-----	-----	-----
	(0.05)						
1989-91	-0.248	-----	-----	-----	-----	-----	-----
	(0.04)						
2 years ago	0.869	0.793	0.971	0.945	1.007	0.805	0.818
	(0.03)	(0.07)	(0.08)	(0.09)	(0.10)	(0.07)	(0.08)
3 years ago	1.134	0.983	1.132	1.074	1.290	1.289	1.096
	(0.04)	(0.08)	(0.09)	(0.09)	(0.10)	(0.08)	(0.08)
n	26151	5226	4157	3814	3327	4887	4740
log L	-15315.7	-3157.4	-2445.1	-2160.4	-1809.4	-2935.5	-2756.3

Note: The dependent variable equals one if the individual is employed at the survey date and equals zero otherwise. All analyses are weighted by the CPS sampling weights. The base categories of the independent variables are 20-24 year old white males with 12 years of education who lost a job in the 1991-93 period in the year prior to the survey date due to a plant closing. Standard errors are in parentheses.

TABLE 4: Full-Time Part-Time Status, by Year and Reason

Fraction Part-Time on Lost Job
[cell size]

Year	Plant Close	Slack Work	Pos Abol	All
1981-83	.129	.110	.104	.117
	[2072]	[2503]	[643]	[5218]
1983-85	.116	.093	.113	.106
	[1904]	[1656]	[595]	[4155]
1985-87	.115	.099	.118	.110
	[1865]	[1382]	[567]	[3814]
1987-89	.113	.077	.111	.100
	[1681]	[1121]	[518]	[3320]
1989-91	.115	.099	.092	.104
	[2054]	[2092]	[732]	[4878]
1991-93	.110	.126	.113	.117
	[1717]	[1803]	[1108]	[4628]
All Years	.116	.103	.109	.110
	[11293]	[10557]	[4163]	[26013]

Fraction Part-Time on Current Job
[cell size]

Year	Plant Close	Slack Work	Pos Abol	All
1981-83	.255	.276	.248	.264
	[1276]	[1341]	[403]	[3020]
1983-85	.226	.233	.257	.233
	[1270]	[917]	[389]	[2576]
1985-87	.208	.232	.218	.217
	[1315]	[803]	[383]	[2501]
1987-89	.246	.217	.174	.225
	[1203]	[700]	[350]	[2253]
1989-91	.259	.273	.220	.258
	[1335]	[1021]	[454]	[2810]
1991-93	.299	.331	.303	.312
	[1172]	[1105]	[792]	[3069]
All Years	.249	.268	.248	.256
	[7571]	[5887]	[2771]	[16229]

Note: Weighted by CPS sampling weights. The numbers in brackets are sample sizes.

TABLE 5: Logit Analysis of Survey-Date Full-Time Part-Time Status, 1981-93

Variable	Pooled	1981-83	1983-85	1985-87	1987-89	1989-91	1991-93
constant	-0.877	-1.301	-1.332	-1.493	-1.480	-0.935	-0.857
	(0.08)	(0.14)	(0.15)	(0.18)	(0.19)	(0.16)	(0.15)
age25-34	-0.132	-0.156	-0.236	0.083	0.244	-0.251	-0.260
	(0.06)	(0.11)	(0.14)	(0.15)	(0.17)	(0.14)	(0.14)
age35-44	-0.199	-0.237	-0.237	0.119	0.092	-0.404	-0.280
	(0.06)	(0.13)	(0.15)	(0.17)	(0.18)	(0.15)	(0.14)
age45-54	-0.279	-0.403	-0.433	0.103	-0.099	-0.356	-0.378
	(0.07)	(0.16)	(0.18)	(0.19)	(0.22)	(0.16)	(0.16)
age55-64	0.299	0.055	0.386	0.576	0.693	0.060	0.199
	(0.08)	(0.20)	(0.21)	(0.22)	(0.23)	(0.20)	(0.19)
ed<12	0.375	0.454	0.554	0.227	0.499	0.518	-0.056
	(0.06)	(0.12)	(0.14)	(0.14)	(0.15)	(0.14)	(0.15)
ed13-15	-0.132	0.149	-0.087	-0.508	-0.248	0.014	-0.227
	(0.05)	(0.11)	(0.13)	(0.13)	(0.14)	(0.11)	(0.10)
ed≥16	-0.409	-0.574	-0.147	-0.782	-0.349	-0.448	-0.318
	(0.06)	(0.14)	(0.15)	(0.17)	(0.16)	(0.13)	(0.11)
female	0.590	0.722	0.760	0.584	0.616	0.369	0.588
	(0.04)	(0.09)	(0.10)	(0.11)	(0.11)	(0.09)	(0.08)
nonwhite	0.255	0.416	0.167	0.286	0.174	0.301	0.236
	(0.06)	(0.14)	(0.15)	(0.14)	(0.16)	(0.13)	(0.12)
part-time	1.144	1.110	1.082	1.148	1.389	1.239	1.018
(old job)	(0.06)	(0.13)	(0.15)	(0.15)	(0.16)	(0.14)	(0.12)
slack work	0.135	0.202	0.106	0.217	-0.078	0.092	0.216
	(0.04)	(0.09)	(0.11)	(0.11)	(0.12)	(0.10)	(0.10)
pos abol	0.046	0.067	0.164	0.168	-0.364	-0.002	0.098
	(0.06)	(0.14)	(0.14)	(0.15)	(0.17)	(0.14)	(0.11)
1981-83	-0.273	-----	-----	-----	-----	-----	-----
	(0.06)						
1983-85	-0.452	-----	-----	-----	-----	-----	-----
	(0.06)						
1985-87	-0.539	-----	-----	-----	-----	-----	-----
	(0.06)						
1987-89	-0.487	-----	-----	-----	-----	-----	-----
	(0.07)						
1989-91	-0.264	-----	-----	-----	-----	-----	-----
	(0.06)						
2 years ago	-0.312	-0.261	-0.538	-0.404	-0.457	-0.287	-0.124
	(0.05)	(0.10)	(0.12)	(0.12)	(0.13)	(0.11)	(0.10)
3 years ago	-0.289	-0.209	-0.336	-0.328	-0.389	-0.419	-0.144
	(0.05)	(0.11)	(0.12)	(0.12)	(0.13)	(0.11)	(0.10)
n	16149	3016	2575	2501	2249	2805	3003
log L	-8588.1	-1614.0	-1295.0	-1220.7	-1106.7	-1506.0	-1768.5

Note: The dependent variable equals one if the individual is employed part-time at the survey date and equals zero otherwise. All analyses are weighted by the CPS sampling weights. The base categories of the independent variables are 20-24 year old white males with 12 years of education who lost a full-time job in the 1991-93 period in the year prior to the survey date due to a plant closing. Standard errors are in parentheses.

TABLE 6: Post-Displacement Change in Earnings, by Year and Reason

Average Change in Log Real Weekly Earnings
(standard error)

Year	Plant Close	Slack Work	Pos Abol	All
1981-83	-0.106	-0.183	-0.188	-0.152
	(0.02)	(0.02)	(0.04)	(0.01)
1983-85	-0.127	-0.147	-0.102	-0.131
	(0.02)	(0.02)	(0.04)	(0.01)
1985-87	-0.101	-0.145	-0.113	-0.117
	(0.02)	(0.02)	(0.04)	(0.01)
1987-89	-0.071	-0.135	-0.127	-0.100
	(0.02)	(0.02)	(0.04)	(0.01)
1989-91	-0.137	-0.203	-0.215	-0.173
	(0.02)	(0.02)	(0.03)	(0.01)
1991-93	-0.177	-0.119	-0.206	-0.163
	(0.02)	(0.02)	(0.03)	(0.01)
All Years	-0.119	-0.157	-0.166	-0.141
	(0.01)	(-0.01)	(-0.01)	(0.01)

Note: The change in log real weekly earnings age is computed as the difference between post-displacement log real weekly earnings and pre-displacement log real weekly earnings. Earnings are deflated by the 1982-84=100 CPI. All means are weighted by CPS sampling weights. The overall sample size is 12,728.

TABLE 7: Post-Displacement Change in Full-Time Earnings, by Year and Reason

Average Change in Log Real Weekly Earnings (Full-Time to Full-Time)
(standard error)

Year	Plant Close	Slack Work	Pos Abol	All
1981-83	-0.093	-0.106	-0.081	-0.097
	(0.02)	(0.02)	(0.04)	(0.01)
1983-85	-0.065	-0.060	-0.035	-0.059
	(0.02)	(0.02)	(0.03)	(0.01)
1985-87	-0.088	-0.085	-0.084	-0.086
	(0.02)	(0.02)	(0.03)	(0.01)
1987-89	-0.025	-0.058	-0.088	-0.046
	(0.02)	(0.02)	(0.03)	(0.01)
1989-91	-0.094	-0.127	-0.128	-0.111
	(0.02)	(0.02)	(0.03)	(0.01)
1991-93	-0.132	-0.074	-0.161	-0.119
	(0.02)	(0.02)	(0.03)	(0.01)
All Years	-0.081	-0.087	-0.105	-0.090
	(0.01)	(-0.01)	(-0.01)	(0.01)

Note: The change in log real weekly earnings age is computed as the difference between post-displacement log real weekly earnings and pre-displacement log real weekly earnings. Earnings are deflated by the 1982-84=100 CPI. All means are weighted by CPS sampling weights. The overall sample size is 8,667.

TABLE 8: Regression Analysis of Change in Log Real Weekly Earnings at Survey Date, 1981-93

Variable	Pooled	1981-83	1983-85	1985-87	1987-89	1989-91	1991-93
constant	0.026	0.047	0.040	0.069	0.100	-0.005	-0.095
	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.06)
age25-34	-0.046	-0.019	-0.122	-0.077	-0.095	-0.002	0.009
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.05)
age35-44	-0.132	-0.072	-0.170	-0.170	-0.116	-0.140	-0.118
	(0.02)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
age45-54	-0.155	-0.120	-0.236	-0.201	-0.232	-0.098	-0.079
	(0.02)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)	(0.06)
age55-64	-0.269	-0.194	-0.339	-0.375	-0.204	-0.173	-0.317
	(0.02)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.07)
ed<12	-0.029	-0.106	-0.032	-0.085	0.031	-0.003	0.088
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.05)
ed13-15	-0.014	-0.044	0.036	0.033	-0.010	-0.095	0.027
	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
ed≥16	0.042	0.027	0.087	-0.004	0.059	0.029	0.068
	(0.01)	(0.04)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)
female	-0.000	0.011	-0.005	-0.010	-0.041	0.020	0.006
	(0.01)	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)
nonwhite	0.008	0.033	0.007	0.034	-0.034	-0.010	0.016
	(0.02)	(0.04)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)
part-time	-0.447	-0.436	-0.509	-0.387	-0.459	-0.498	-0.388
(new job)	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
part-time	0.533	0.578	0.434	0.507	0.484	0.605	0.561
(old job)	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)
slack work	-0.035	-0.090	-0.014	-0.054	-0.063	-0.063	0.064
	(0.01)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
pos abol	-0.047	-0.084	0.019	-0.026	-0.070	-0.080	-0.028
	(0.01)	(0.04)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)
1981-83	-0.015	-----	-----	-----	-----	-----	-----
	(0.02)						
1983-85	-0.004	-----	-----	-----	-----	-----	-----
	(0.02)						
1985-87	0.006	-----	-----	-----	-----	-----	-----
	(0.02)						
1987-89	0.028	-----	-----	-----	-----	-----	-----
	(0.02)						
1989-91	-0.035	-----	-----	-----	-----	-----	-----
	(0.02)						
2 years ago	-0.000	-0.022	0.022	-0.019	0.009	0.002	-0.003
	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
3 years ago	0.018	-0.054	0.074	0.025	0.017	0.036	-0.003
	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
n	12364	1897	2151	2130	1856	2327	2003
R-squared	0.164	0.192	0.198	0.168	0.148	0.206	0.135

Note: The dependent variable is the difference in real log weekly earnings between the post-displacement job held at the survey date and the job from which the worker was displaced. All analyses are weighted by the CPS sampling weights. The base categories of the independent variables are 20-24 year old white males working full time with 12 years of education who lost a full-time job in the 1991-93 period in the year prior to the survey date due to a plant closing. Standard errors are in parentheses.

TABLE 9: Post-Displacement Job Stability, by Year and Reason

Fraction of Re-Employed With More than One Job Since Displacement

[cell size]

Year	Plant Close	Slack Work	Pos Abol	All
1983-85	0.364	0.348	0.383	0.361
	[1482]	[1099]	[452]	[3033]
1985-87	0.357	0.366	0.338	0.357
	[1533]	[979]	[453]	[2965]
1987-89	0.400	0.315	0.350	0.365
	[1387]	[792]	[399]	[2578]
1989-91	0.339	0.319	0.289	0.324
	[1567]	[1236]	[530]	[3333]
1991-93	0.334	0.314	0.302	0.319
	[1313]	[1257]	[859]	[3429]
All Years	0.357	0.331	0.325	0.342
	[7282]	[5363]	[2693]	[15338]

Note: Includes Displaced works who held at least one job since displacement. Weighted by CPS sampling weights. The numbers in brackets are sample sizes.

TABLE 10: Logit Analysis of Probability of Holding More than One Job Since Displacement, 1983-93

Variable	Pooled	1983-85	1985-87	1987-89	1989-91	1991-93
constant	-0.907	-0.929	-0.924	-0.725	-1.009	-0.645
	(0.07)	(0.13)	(0.14)	(0.15)	(0.13)	(0.14)
age25-34	-0.307	-0.212	-0.216	-0.484	-0.198	-0.442
	(0.05)	(0.11)	(0.12)	(0.13)	(0.12)	(0.12)
age35-44	-0.644	-0.568	-0.569	-0.664	-0.565	-0.817
	(0.06)	(0.12)	(0.13)	(0.14)	(0.12)	(0.13)
age45-54	-0.825	-1.025	-1.040	-0.557	-0.674	-0.894
	(0.07)	(0.16)	(0.16)	(0.16)	(0.14)	(0.14)
age55-64	-0.941	-1.037	-1.146	-1.248	-0.663	-0.817
	(0.08)	(0.19)	(0.20)	(0.21)	(0.18)	(0.18)
ed<12	0.030	0.013	0.185	0.057	0.067	-0.195
	(0.05)	(0.11)	(0.11)	(0.13)	(0.12)	(0.14)
ed13-15	-0.002	0.003	-0.008	-0.013	0.170	-0.143
	(0.04)	(0.10)	(0.10)	(0.11)	(0.09)	(0.09)
ed≥16	-0.183	-0.189	-0.306	-0.129	-0.101	-0.215
	(0.05)	(0.12)	(0.12)	(0.13)	(0.11)	(0.11)
female	-0.039	0.006	-0.034	-0.017	-0.101	-0.041
	(0.04)	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)
nonwhite	0.006	-0.184	0.067	0.047	-0.022	0.081
	(0.05)	(0.12)	(0.12)	(0.13)	(0.12)	(0.11)
slack work	-0.029	0.012	0.076	-0.294	0.012	-0.008
	(0.04)	(0.09)	(0.09)	(0.10)	(0.08)	(0.09)
posabol	0.016	0.218	0.036	-0.099	-0.103	0.021
	(0.05)	(0.12)	(0.12)	(0.13)	(0.12)	(0.10)
1983-85	0.124	-----	-----	-----	-----	-----
	(0.06)					
1985-87	0.089	-----	-----	-----	-----	-----
	(0.05)					
1987-89	0.145	-----	-----	-----	-----	-----
	(0.06)					
1989-91	0.004	-----	-----	-----	-----	-----
	(0.05)					
2 years ago	0.833	0.990	0.853	0.886	0.812	0.681
	(0.05)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)
3 years ago	1.175	1.233	1.241	1.369	1.099	1.034
	(0.05)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)
n	15338	3033	2965	2578	3333	3429
log L	-9353.4	-1864.6	-1817.0	-1580.3	-2004.0	-2056.9

Note: The dependent variable equals one if the individual held more than one job since displacement and equals zero otherwise. The Sample includes Displaced works who held at least one job since displacement. All analyses are weighted by the CPS sampling weights. The base categories of the independent variables are 20-24 year old white males with 12 years of education who lost a job in the 1991-93 period in the year prior to the survey date. Standard errors are in parentheses.

TABLE 11: Post-Displacement Self-Employment Status, by Year and Reason

Fraction of Employed who are Self-Employed at Survey Date

[cell size]

Year	Plant Close	Slack Work	Pos Abol	All
1981-83	0.084	0.082	0.085	0.083
	[1319]	[1375]	[421]	[3115]
1983-85	0.068	0.071	0.061	0.068
	[1302]	[951]	[395]	[2648]
1985-87	0.063	0.058	0.082	0.064
	[1366]	[833]	[396]	[2595]
1987-89	0.055	0.061	0.080	0.061
	[1243]	[721]	[366]	[2330]
1989-91	0.062	0.088	0.076	0.074
	[1374]	[1055]	[463]	[2892]
1991-93	0.068	0.086	0.093	0.081
	[1215]	[1150]	[814]	[3179]
Total	0.066	0.077	0.082	0.073
	[7819]	[6085]	[2855]	[16759]

Note: Includes Displaced workers who were employed at the survey-date. Weighted by CPS sampling weights. The numbers in brackets are sample sizes.

TABLE 12: Logit Analysis of Probability of Self-Employment among Workers Employed at Survey Date, 1983-93

Variable	Pooled	1981-83	1983-85	1985-87	1987-89	1989-91	1991-93
constant	-3.315	-2.769	-3.113	-3.910	-4.262	-3.383	-3.518
	(0.15)	(0.24)	(0.32)	(0.40)	(0.52)	(0.33)	(0.34)
age25-34	0.788	0.714	0.851	0.941	1.528	0.676	0.561
	(0.13)	(0.21)	(0.31)	(0.37)	(0.51)	(0.31)	(0.32)
age35-44	0.973	0.728	1.128	1.068	1.663	0.864	0.918
	(0.13)	(0.24)	(0.32)	(0.37)	(0.51)	(0.32)	(0.32)
age45-54	1.097	0.729	1.287	1.102	1.677	1.136	1.042
	(0.14)	(0.27)	(0.34)	(0.40)	(0.53)	(0.33)	(0.33)
age55-64	1.128	0.607	1.223	1.138	1.476	1.039	1.386
	(0.16)	(0.34)	(0.39)	(0.45)	(0.59)	(0.38)	(0.35)
ed<12	-0.038	-0.155	-0.090	-0.066	0.208	-0.039	0.041
	(0.10)	(0.21)	(0.23)	(0.25)	(0.26)	(0.27)	(0.26)
ed13-15	0.080	0.253	-0.172	0.123	0.073	0.091	0.090
	(0.08)	(0.17)	(0.22)	(0.21)	(0.23)	(0.19)	(0.17)
ed≥16	0.380	0.258	0.143	0.428	0.080	0.676	0.452
	(0.08)	(0.18)	(0.21)	(0.21)	(0.24)	(0.18)	(0.17)
female	-0.398	-0.727	-0.537	-0.334	-0.141	-0.404	-0.240
	(0.07)	(0.16)	(0.18)	(0.18)	(0.18)	(0.16)	(0.14)
nonwhite	-0.415	-0.201	-0.523	-0.712	-0.498	-0.216	-0.454
	(0.11)	(0.23)	(0.30)	(0.32)	(0.33)	(0.25)	(0.23)
posabol	0.086	-0.034	-0.165	0.222	0.342	-0.083	0.219
	(0.08)	(0.20)	(0.25)	(0.22)	(0.24)	(0.22)	(0.17)
slackwk	0.126	-0.054	0.029	-0.042	0.131	0.338	0.278
	(0.07)	(0.14)	(0.17)	(0.19)	(0.20)	(0.16)	(0.16)
1981-83	0.142	-----	-----	-----	-----	-----	-----
	(0.09)						
1983-85	-0.095	-----	-----	-----	-----	-----	-----
	(0.10)						
1985-87	-0.169	-----	-----	-----	-----	-----	-----
	(0.10)						
1987-89	-0.232	-----	-----	-----	-----	-----	-----
	(0.11)						
1989-91	-0.062	-----	-----	-----	-----	-----	-----
	(0.09)						
2 years ago	-0.002	-0.159	-0.283	0.397	0.000	-0.053	0.173
	(0.07)	(0.16)	(0.19)	(0.22)	(0.22)	(0.17)	(0.16)
3 years ago	0.001	-0.021	-0.277	0.554	-0.046	-0.241	0.126
	(0.07)	(0.16)	(0.19)	(0.21)	(0.21)	(0.18)	(0.16)
n	16759	3115	2648	2595	2330	2892	3179
log L	-4257.1	-868.9	-635.7	-596.1	-522.0	-735.9	-866.3

Note: The dependent variable equals one if the individual was self-employed at the survey date and equals zero otherwise. The Sample includes Displaced works who were employed at the survey date. All analyses are weighted by the CPS sampling weights. The base categories of the independent variables are 20-24 year old white males with 12 years of education who lost a job in the 1991-93 period in the year prior to the survey date. Standard errors are in parentheses.

Appendix Table 1:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 1)

Males

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.145	0.047	0.065	0.019	0.019
1983-85	0.116	0.044	0.043	0.017	0.017
1985-87	0.110	0.042	0.035	0.022	0.022
1987-89	0.099	0.037	0.031	0.020	0.020
1989-91	0.143	0.047	0.055	0.025	0.025
1991-93	0.150	0.040	0.052	0.034	0.034

Females

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.108	0.040	0.037	0.013	0.019
1983-85	0.089	0.036	0.025	0.012	0.016
1985-87	0.083	0.036	0.019	0.011	0.017
1987-89	0.081	0.036	0.016	0.011	0.018
1989-91	0.103	0.041	0.029	0.013	0.019
1991-93	0.114	0.034	0.028	0.022	0.030

Appendix Table 2a:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 2a, Males by Age)

Age 20-24

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.191	0.054	0.097	0.012	0.028
1983-85	0.135	0.047	0.054	0.011	0.023
1985-87	0.116	0.036	0.046	0.008	0.026
1987-89	0.105	0.033	0.037	0.007	0.028
1989-91	0.176	0.055	0.078	0.011	0.032
1991-93	0.154	0.041	0.060	0.011	0.042

Age 25-34

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.180	0.055	0.087	0.015	0.023
1983-85	0.135	0.047	0.056	0.012	0.019
1985-87	0.126	0.047	0.045	0.012	0.022
1987-89	0.114	0.042	0.039	0.011	0.021
1989-91	0.152	0.048	0.062	0.014	0.028
1991-93	0.155	0.038	0.061	0.020	0.035

Age 35-44

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.117	0.038	0.051	0.012	0.015
1983-85	0.113	0.044	0.041	0.012	0.015
1985-87	0.106	0.041	0.031	0.011	0.023
1987-89	0.096	0.036	0.027	0.014	0.019
1989-91	0.136	0.046	0.048	0.019	0.023
1991-93	0.146	0.039	0.050	0.026	0.031

Age 45-54

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.101	0.040	0.037	0.012	0.011
1983-85	0.086	0.037	0.026	0.012	0.011
1985-87	0.091	0.040	0.024	0.011	0.016
1987-89	0.077	0.030	0.021	0.012	0.015
1989-91	0.124	0.042	0.040	0.021	0.021
1991-93	0.137	0.041	0.036	0.028	0.032

Age 55-64

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.111	0.046	0.037	0.012	0.016
1983-85	0.093	0.043	0.022	0.012	0.016
1985-87	0.094	0.041	0.020	0.014	0.019
1987-89	0.086	0.038	0.024	0.010	0.014
1989-91	0.131	0.046	0.048	0.018	0.020
1991-93	0.166	0.049	0.050	0.031	0.036

Appendix Table 2b:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 2b, Females by Age)

Age 20-24

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.136	0.051	0.048	0.015	0.023
1983-85	0.110	0.040	0.035	0.012	0.023
1985-87	0.090	0.040	0.024	0.008	0.018
1987-89	0.087	0.037	0.023	0.009	0.018
1989-91	0.113	0.043	0.037	0.010	0.023
1991-93	0.127	0.034	0.034	0.017	0.042

Age 25-34

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.117	0.038	0.044	0.015	0.021
1983-85	0.098	0.039	0.028	0.014	0.017
1985-87	0.092	0.038	0.024	0.012	0.019
1987-89	0.091	0.039	0.018	0.013	0.021
1989-91	0.115	0.045	0.035	0.015	0.020
1991-93	0.129	0.039	0.033	0.024	0.034

Age 35-44

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.098	0.036	0.032	0.012	0.017
1983-85	0.076	0.031	0.020	0.010	0.014
1985-87	0.080	0.035	0.015	0.013	0.017
1987-89	0.079	0.034	0.015	0.011	0.019
1989-91	0.097	0.039	0.027	0.013	0.018
1991-93	0.108	0.032	0.026	0.023	0.026

Age 45-54

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.087	0.036	0.026	0.011	0.015
1983-85	0.075	0.032	0.021	0.012	0.010
1985-87	0.068	0.032	0.015	0.009	0.012
1987-89	0.066	0.032	0.012	0.008	0.014
1989-91	0.092	0.035	0.025	0.017	0.015
1991-93	0.101	0.028	0.024	0.022	0.026

Age 55-64

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.093	0.043	0.025	0.012	0.014
1983-85	0.086	0.042	0.016	0.012	0.016
1985-87	0.075	0.035	0.012	0.012	0.016
1987-89	0.073	0.037	0.014	0.010	0.012
1989-91	0.089	0.046	0.018	0.008	0.018
1991-93	0.104	0.042	0.017	0.021	0.024

Appendix Table 3a:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 3a, Malesby Education)

Education < 12 years

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.202	0.067	0.096	0.011	0.029
1983-85	0.165	0.067	0.064	0.011	0.022
1985-87	0.151	0.061	0.050	0.011	0.029
1987-89	0.133	0.053	0.047	0.006	0.026
1989-91	0.205	0.071	0.090	0.009	0.035
1991-93	0.184	0.057	0.072	0.009	0.046

Education = 12 years

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.169	0.055	0.081	0.013	0.020
1983-85	0.134	0.051	0.053	0.011	0.019
1985-87	0.124	0.047	0.043	0.011	0.023
1987-89	0.108	0.041	0.035	0.010	0.022
1989-91	0.159	0.052	0.065	0.013	0.029
1991-93	0.161	0.045	0.062	0.019	0.034

Education 13-15 years

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.135	0.043	0.063	0.012	0.017
1983-85	0.113	0.041	0.041	0.012	0.018
1985-87	0.111	0.042	0.033	0.012	0.024
1987-89	0.101	0.038	0.031	0.012	0.020
1989-91	0.139	0.049	0.049	0.017	0.024
1991-93	0.160	0.043	0.053	0.027	0.036

Education $\geq$16

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.077	0.025	0.024	0.015	0.012
1983-85	0.064	0.022	0.019	0.012	0.011
1985-87	0.067	0.025	0.016	0.011	0.014
1987-89	0.065	0.020	0.016	0.016	0.012
1989-91	0.099	0.027	0.030	0.025	0.017
1991-93	0.111	0.024	0.030	0.029	0.028

Appendix Table 3b:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 3b, Females by Education)

Education < 12 years

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.168	0.064	0.061	0.013	0.030
1983-85	0.133	0.060	0.041	0.011	0.021
1985-87	0.121	0.060	0.029	0.008	0.024
1987-89	0.120	0.059	0.026	0.005	0.030
1989-91	0.153	0.061	0.056	0.007	0.029
1991-93	0.156	0.062	0.047	0.010	0.037

Education = 12 years

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.119	0.045	0.044	0.012	0.019
1983-85	0.100	0.041	0.029	0.011	0.018
1985-87	0.089	0.041	0.022	0.010	0.017
1987-89	0.091	0.042	0.021	0.011	0.018
1989-91	0.112	0.050	0.033	0.011	0.018
1991-93	0.120	0.039	0.031	0.018	0.031

Education 13-15 years

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.099	0.037	0.029	0.015	0.017
1983-85	0.081	0.029	0.021	0.015	0.016
1985-87	0.084	0.036	0.019	0.013	0.015
1987-89	0.076	0.032	0.014	0.014	0.016
1989-91	0.101	0.039	0.027	0.014	0.020
1991-93	0.124	0.035	0.029	0.027	0.033

Education $\geq$16

Year	Total	Pl Close	Slack Wk	Pos Abol	other
1981-83	0.058	0.017	0.015	0.013	0.013
1983-85	0.053	0.020	0.010	0.013	0.010
1985-87	0.051	0.016	0.008	0.011	0.015
1987-89	0.052	0.019	0.008	0.010	0.016
1989-91	0.073	0.023	0.017	0.018	0.015
1991-93	0.082	0.018	0.015	0.026	0.023

Appendix Table 4:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 4, by Occupation)

Managers

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.077	0.037	0.022	0.018
1983-85	0.065	0.035	0.015	0.015
1985-87	0.071	0.038	0.016	0.017
1987-89	0.065	0.040	0.011	0.015
1989-91	0.095	0.046	0.025	0.023
1991-93	0.102	0.040	0.022	0.040

Professional Technical Workers

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.053	0.016	0.024	0.012
1983-85	0.053	0.021	0.020	0.013
1985-87	0.044	0.016	0.016	0.012
1987-89	0.036	0.014	0.011	0.011
1989-91	0.056	0.016	0.022	0.017
1991-93	0.064	0.016	0.023	0.025

Sales and Administration Workers

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.082	0.039	0.030	0.013
1983-85	0.065	0.032	0.021	0.012
1985-87	0.073	0.041	0.019	0.013
1987-89	0.069	0.038	0.017	0.014
1989-91	0.092	0.045	0.029	0.018
1991-93	0.093	0.038	0.030	0.025

Service Workers

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.062	0.030	0.024	0.008
1983-85	0.062	0.030	0.024	0.009
1985-87	0.061	0.034	0.019	0.008
1987-89	0.053	0.032	0.014	0.007
1989-91	0.072	0.037	0.027	0.008
1991-93	0.071	0.030	0.027	0.014

Craftsmen, Operatives, and Laborers

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.211	0.076	0.120	0.015
1983-85	0.166	0.074	0.079	0.013
1985-87	0.127	0.060	0.057	0.010
1987-89	0.112	0.050	0.052	0.009
1989-91	0.174	0.068	0.094	0.012
1991-93	0.138	0.051	0.070	0.016

Appendix Table 5:
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 5, by Industry)

Manufacturing

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.207	0.080	0.107	0.020
1983-85	0.172	0.078	0.074	0.019
1985-87	0.122	0.060	0.048	0.013
1987-89	0.108	0.053	0.041	0.014
1989-91	0.156	0.066	0.073	0.018
1991-93	0.140	0.056	0.058	0.026

Transportation, Communication, and Public Utilities

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.108	0.043	0.049	0.016
1983-85	0.094	0.046	0.034	0.014
1985-87	0.065	0.035	0.019	0.011
1987-89	0.057	0.032	0.015	0.010
1989-91	0.079	0.046	0.022	0.011
1991-93	0.089	0.037	0.026	0.026

Wholesale and Retail Trade

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.097	0.048	0.040	0.009
1983-85	0.074	0.040	0.024	0.010
1985-87	0.097	0.063	0.022	0.012
1987-89	0.093	0.062	0.021	0.011
1989-91	0.115	0.065	0.037	0.014
1991-93	0.113	0.057	0.035	0.021

Finance, Insurance, and Real Estate

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.053	0.022	0.020	0.011
1983-85	0.039	0.021	0.011	0.007
1985-87	0.070	0.035	0.019	0.016
1987-89	0.070	0.032	0.019	0.020
1989-91	0.104	0.049	0.026	0.028
1991-93	0.105	0.040	0.021	0.044

Nonprofessional Services

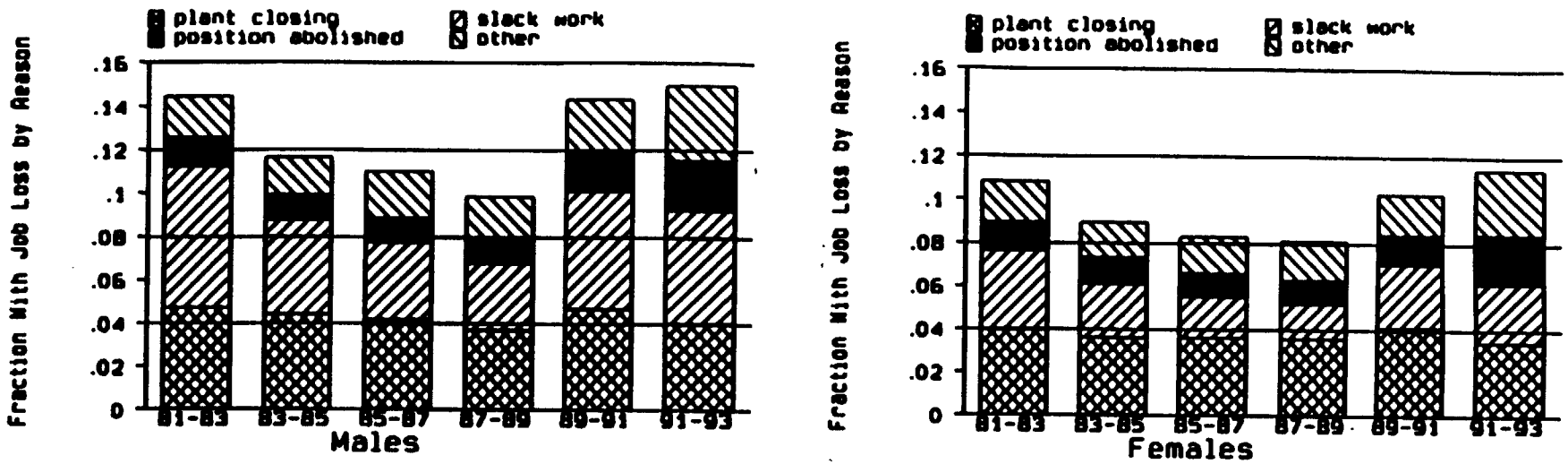
Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.121	0.056	0.050	0.014
1983-85	0.115	0.056	0.042	0.016
1985-87	0.087	0.042	0.032	0.013
1987-89	0.080	0.039	0.026	0.016
1989-91	0.135	0.047	0.066	0.022
1991-93	0.117	0.035	0.051	0.031

Appendix Table 5: (continued)
Three-Year Rate of Job Loss by Reason, 1981-93
(Numbers for Figure 5, by Industry)

Professional Services

Year	Total	Pl Close	Slack Wk	Pos Abol
1981-83	0.031	0.010	0.014	0.007
1983-85	0.026	0.010	0.010	0.006
1985-87	0.033	0.010	0.011	0.011
1987-89	0.027	0.010	0.007	0.010
1989-91	0.040	0.013	0.014	0.013
1991-93	0.049	0.011	0.016	0.022

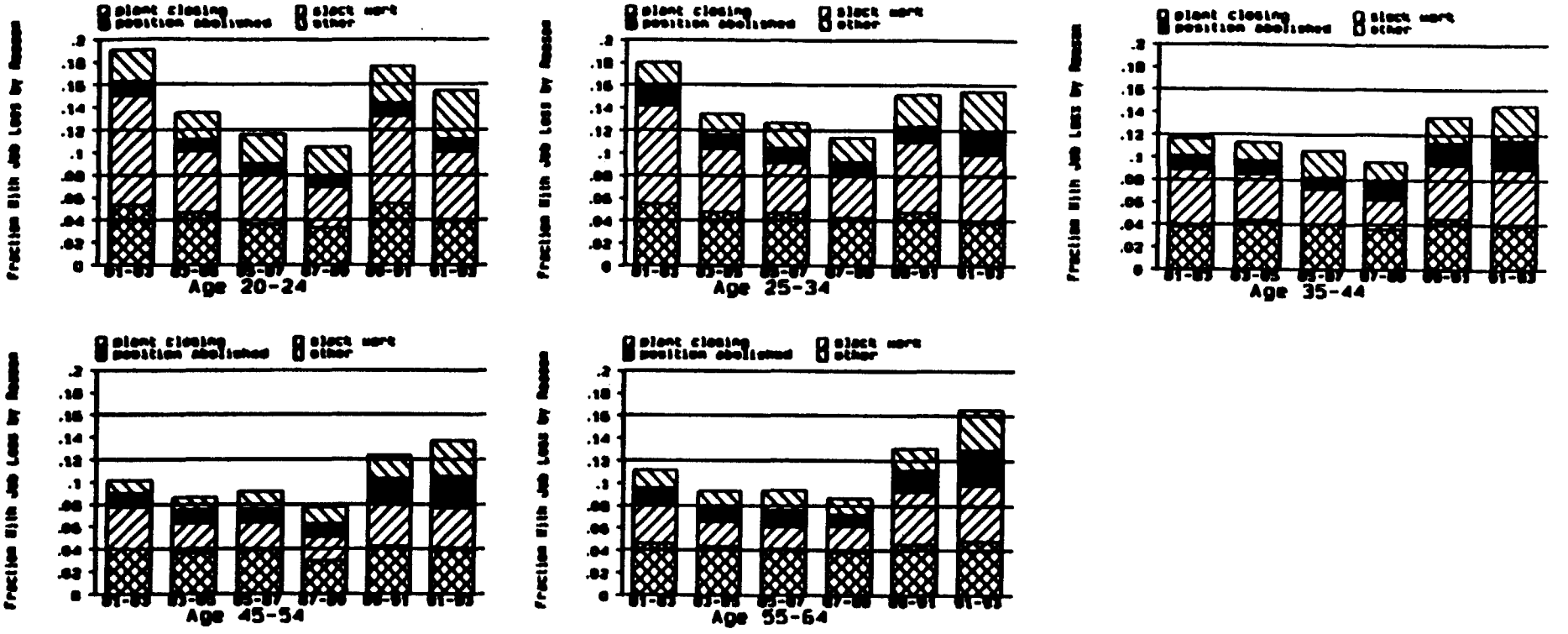
Figure 1



Fraction Workers with Job Loss in 3-Year Period

Rate of Job Loss by Sex and Reason

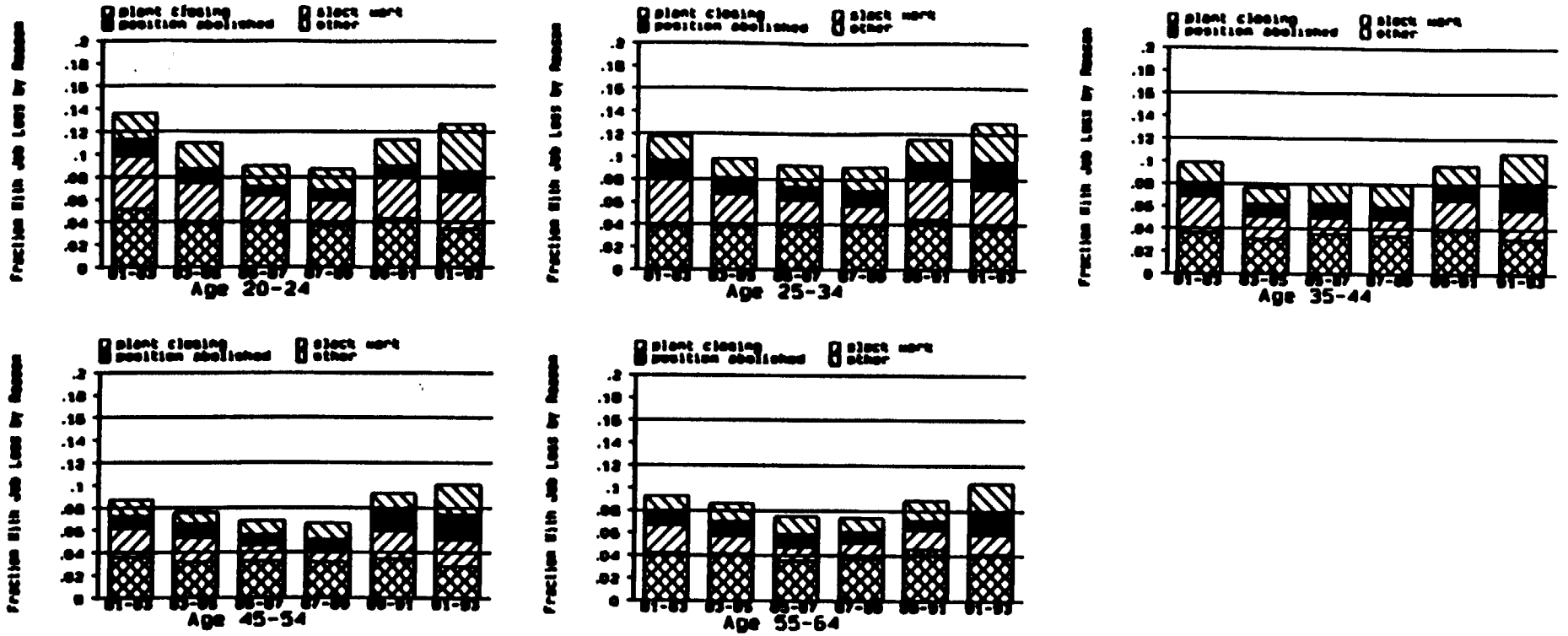
Figure 2a



Fraction Males with Job Loss in 3-Year Period

Rate of Job Loss by Age and Reason

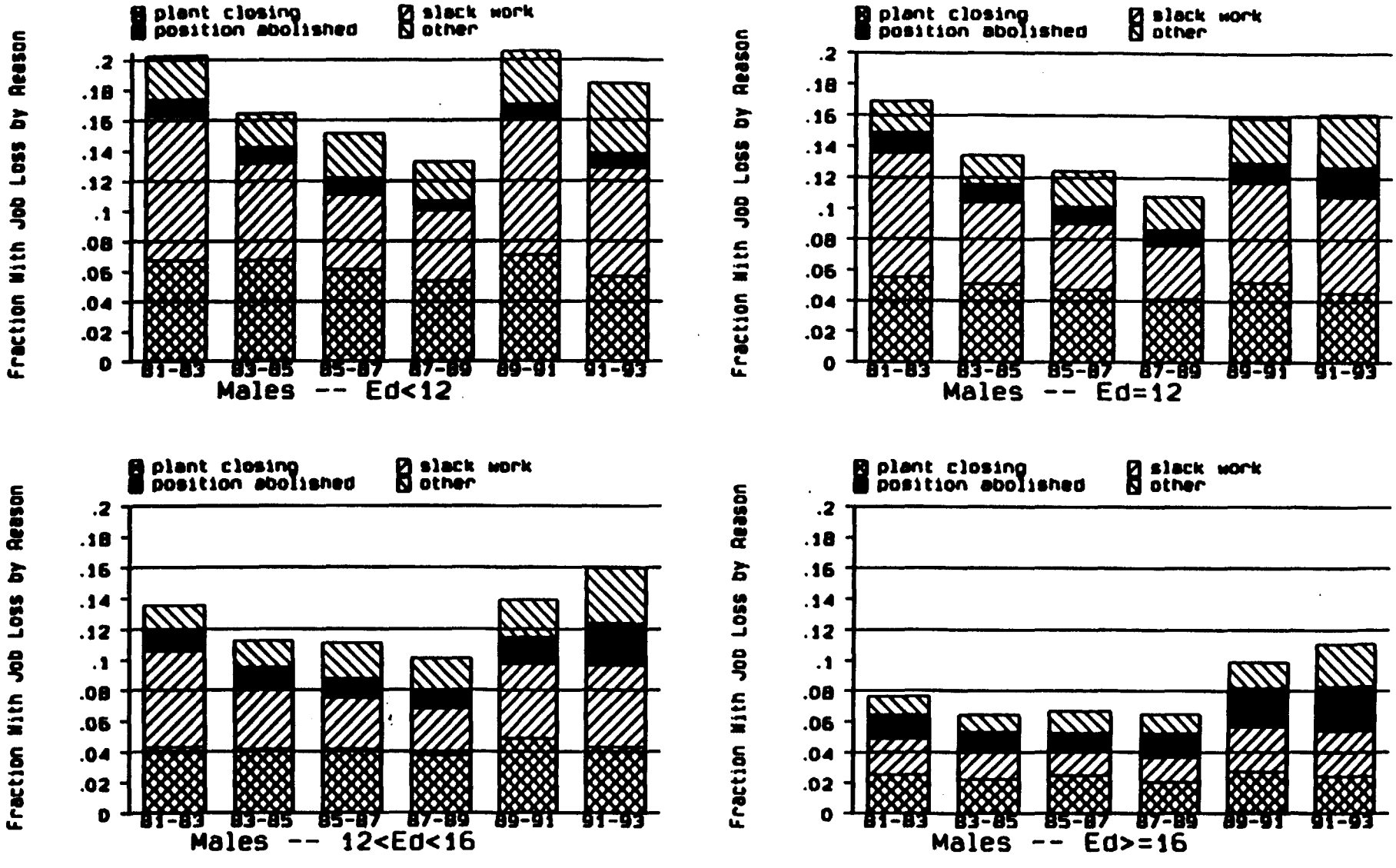
Figure 2b



Fraction Females with Job Loss in 3-Year Period

Rate of Job Loss by Age and Reason

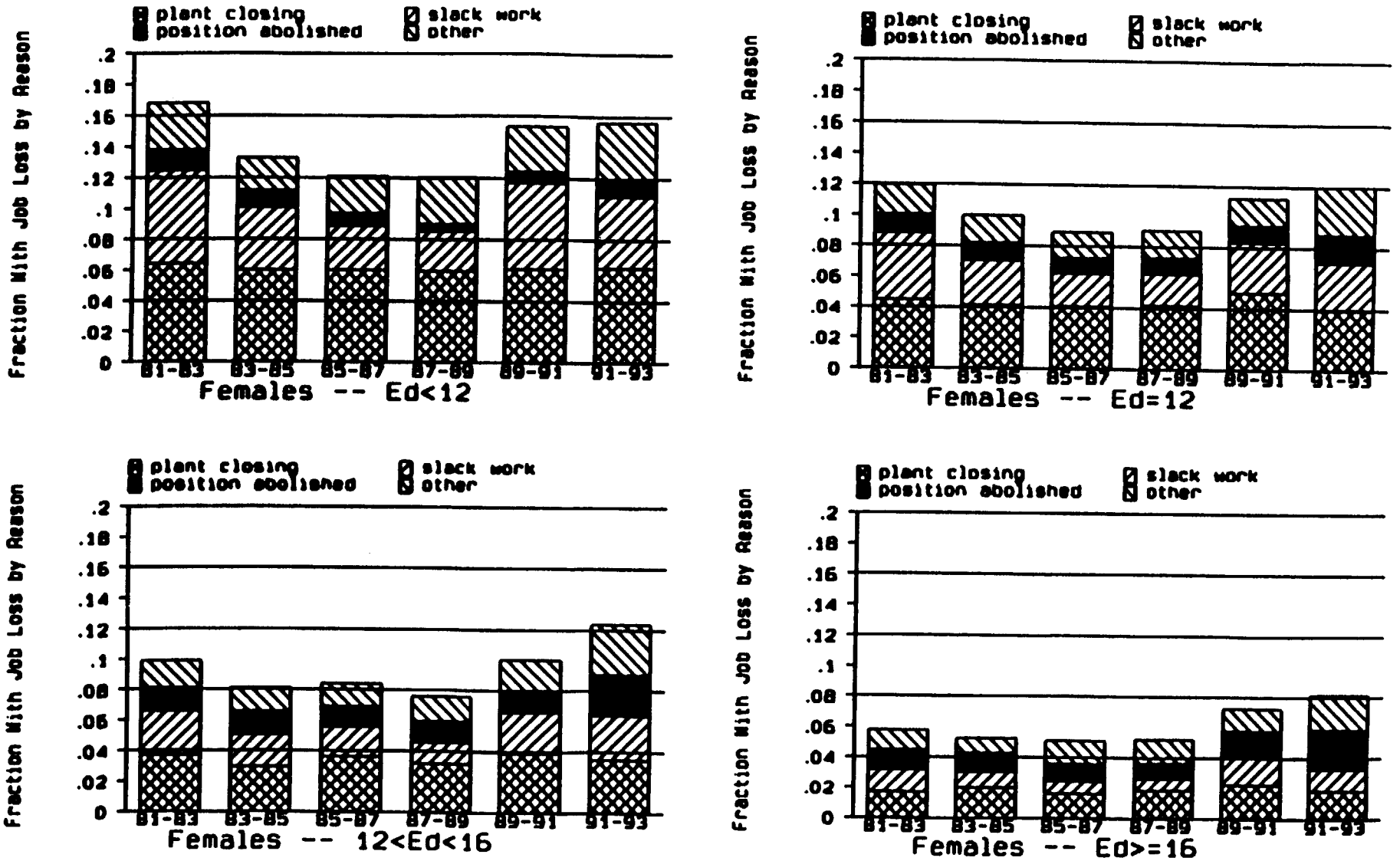
Figure 3a



Fraction Male Workers with Job Loss in 3-Year Period

Rate of Job Loss by Education and Reason

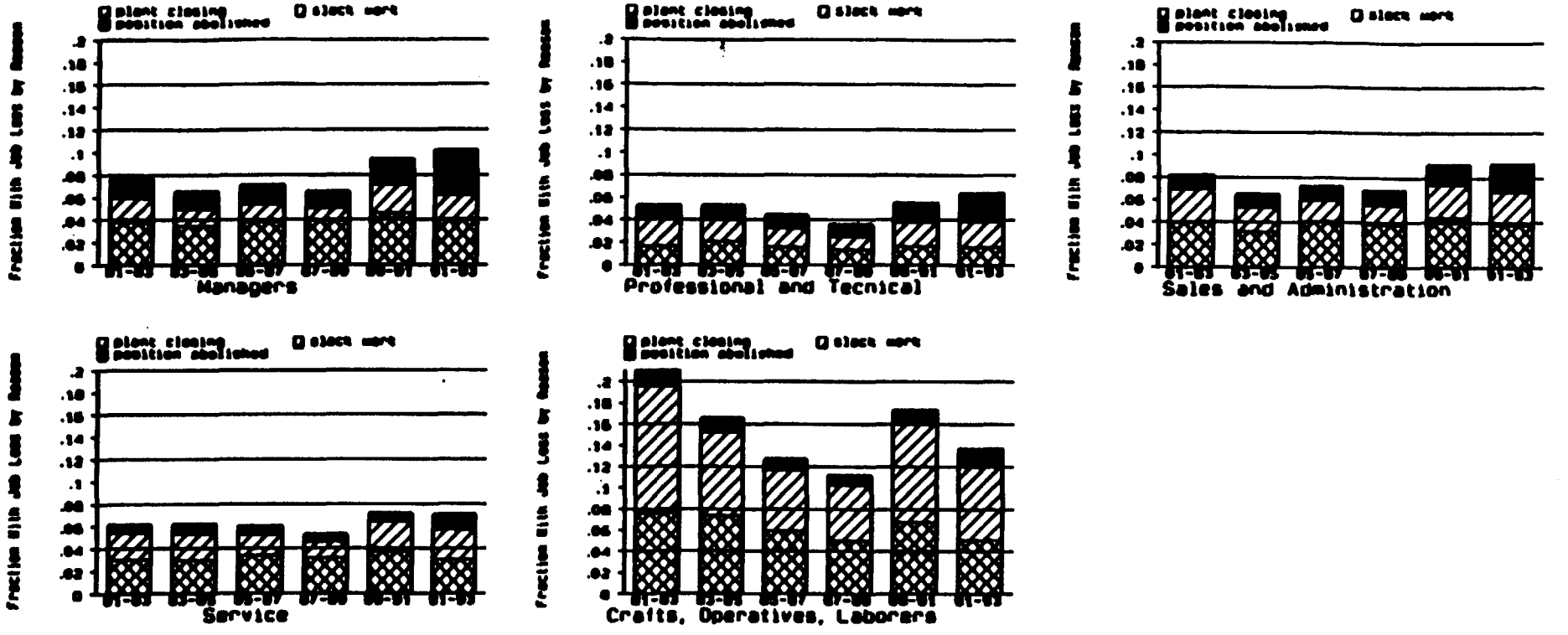
Figure 3b



Fraction Female Workers with Job Loss in 3-Year Period

Rate of Job Loss by Education and Reason

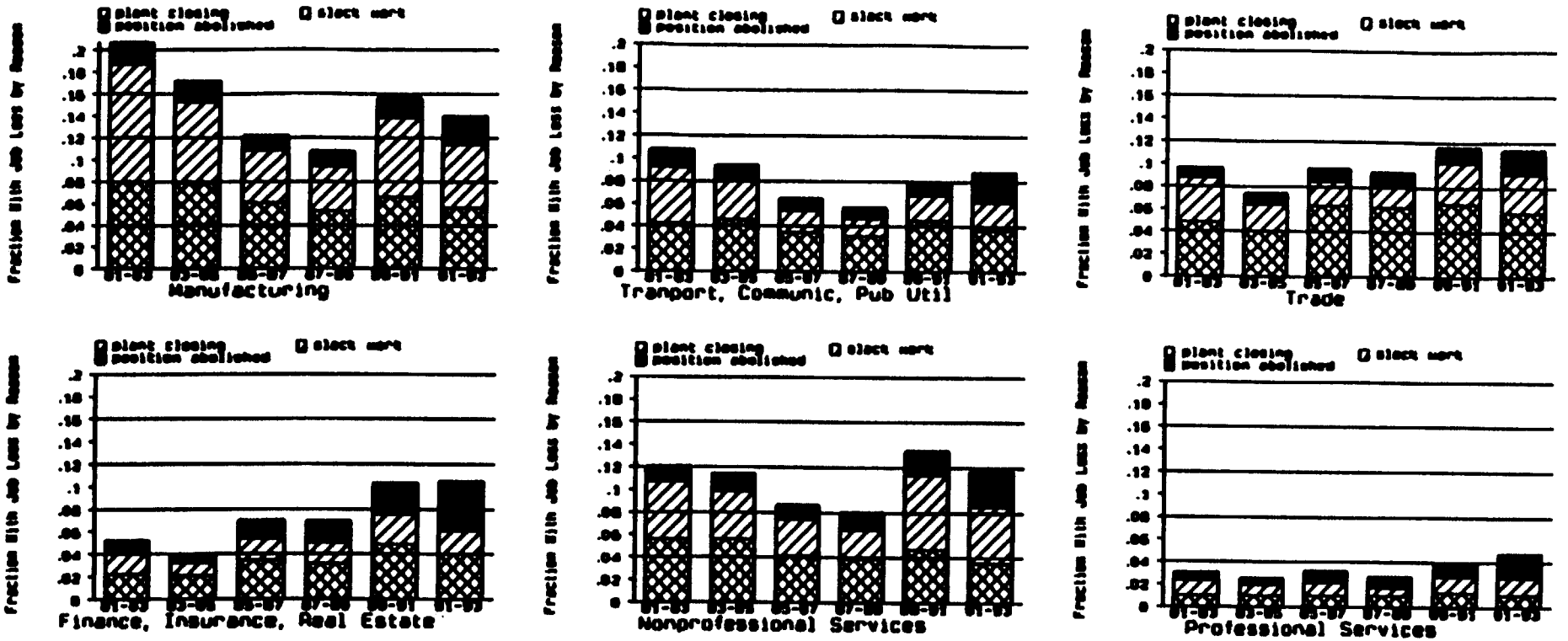
Figure 4



Fraction Workers with Job Loss in 3-Year Period

Rate of Job Loss by Occupation and Reason

Figure 5



Fraction Workers with Job Loss in 3-Year Period

Rate of Job Loss by Industry and Reason