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Has Structural Change Contributed to a Jobless Recovery?

Erica L. Grosben and Simon Potter

The current recovery has seen steady growth in output but no corresponding rise in employment. A look at layoff trends and industry job gains and losses in 2001-03 suggests that structural change—the permanent relocation of workers from some industries to others—may help explain the stalled growth in jobs.

A surge in payroll jobs used to be a reliable sign of the end of a recession—but not any longer. When the National Bureau of Economic Research (NBER), the accepted arbiter of business cycle dating, recently designated November 2001 as the end of the nation's latest recession, it based its decision largely on the growth of output (GDP).¹ By the end of June 2003, GDP had risen 4.5 percent from its low in the third quarter of 2001 and significantly exceeded its pre-recession peak. While the members of the Bureau's dating committee saw the strong growth of this indicator as persuasive evidence that the downturn was over, they acknowledged that their decision was made very difficult by the "divergent behavior of employment." What troubled the committee was that payroll employment, which would normally rise in tandem with output, had shown no sign of recovery. Indeed, the payroll numbers fell almost 0.4 percent in 2002 and another 0.3 percent through July 2003.

In this edition of *Current Issues*, we explore why the recovery from the most recent recession has brought no growth in jobs. We advance the hypothesis that structural changes—permanent shifts in the distribution of workers

throughout the economy—have contributed significantly to the sluggishness in the job market.

We find evidence of structural change in two features of the 2001 recession: the predominance of permanent job losses over temporary layoffs and the relocation of jobs from one industry to another. The data suggest that most of the jobs added during the recovery have been new positions in different firms and industries, not rehires. In our view, this shift to new jobs largely explains why the payroll numbers have been so slow to rise: Creating jobs takes longer than recalling workers to their old positions and is riskier in the current uncertain environment.

A Second Jobless Recovery

The NBER's choice of November 2001 as the end, or "trough," of the recession that began in March 2001 means that the United States has been in a recovery for roughly twenty months. The trough marks not only the lowest point of economic activity but also the beginning of the expansion or rising phase of the business cycle.

Although the weak performance of the labor market during the current recovery has been surprising, it is not

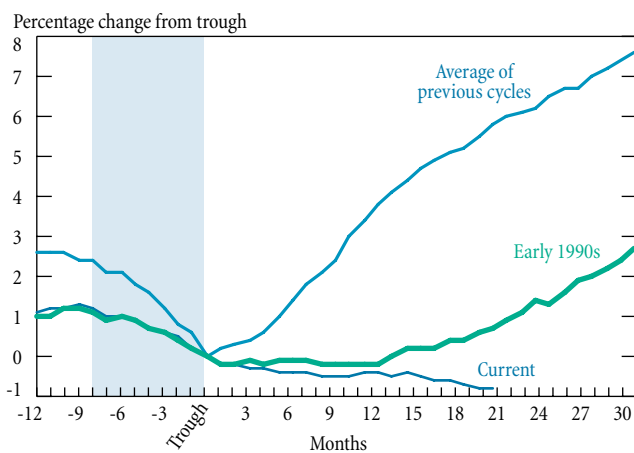
without precedent. The period following the 1990-91 recession was dubbed the “jobless recovery” because the economy added so few jobs during the first year and a half after the expansion began.

The current recovery parallels this earlier recovery in important respects. In 1991-92, output growth rose fairly steadily, but job growth remained near zero for more than a year. In 2002-03, real (inflation-adjusted) GDP has grown each quarter at annualized rates between 1.3 and 5.0 percent, while payroll growth averaged -0.4 percent at an annualized rate through July.²

The sluggishness of payroll growth during the 1991-92 and current recoveries stands in sharp contrast to the vigorous rebound in employment during earlier recoveries (Chart 1). To be sure, these earlier recoveries had rocky moments, with occasional jobless intervals. At the start of any recovery, many employers will delay hires or recalls for a time to be certain that the increase in demand will continue. Nevertheless, although the job market resurgence in the past may often have lagged the output recovery by one quarter, only during the two most recent recoveries has the divergence between job and output growth persisted for a longer period.³

The divergent paths of output and employment in 1991-92 and 2002-03 suggest the emergence of a new kind of recovery, one driven mostly by productivity increases rather than payroll gains. The fact that no influx of new workers occurred in the two most recent recoveries means that output grew because workers were producing more. Although one might speculate that output increased because workers were putting in longer days, average hours worked by employees actually changed little during this and the previous jobless recovery.

Chart 1
Payroll Job Growth during Recoveries



Sources: U.S. Bureau of Labor Statistics; authors' calculations.

Note: The shaded area indicates the length of the 2001 recession.

The parallels between the two most recent recoveries raise hopes that the current recovery will ultimately follow the same course as its predecessor. After about eighteen months, the 1991-92 recovery ushered in very strong employment growth and the longest economic expansion of the postwar period. But while we cannot know when—or how vigorously—job growth will revive during this recovery, we can explore why the recovery is jobless now.

The Role of Structural Change

Recessions mix cyclical and structural adjustments. Cyclical adjustments are reversible responses to lulls in demand, while structural adjustments transform a firm or industry by relocating workers and capital. The job losses associated with cyclical shocks are temporary: at the end of the recession, industries rebound and laid-off workers are recalled to their old firms or readily find comparable employment with another firm. Job losses that stem from structural changes, however, are permanent: as industries decline, jobs are eliminated, compelling workers to switch industries, sectors, locations, or skills in order to find a new job.

A preponderance of structural—as opposed to cyclical—adjustments during the most recent recession would help to explain why employment has languished during the recovery. If job growth now depends on the creation of new positions in different firms and industries, then we would expect a long lag before employment rebounded. Employers incur risks in creating new jobs, and require additional time to establish and fill positions.

In the remainder of this section, then, we look for evidence that structural change played a dominant role in the 2001 recession. Our investigation centers on two questions: Did temporary layoffs decline relative to permanent job losses in the recession? Were many of these lost jobs relocated to different industries?⁴ Throughout the analysis, we compare the 2001 experience with earlier recessions.

Temporary versus Permanent Layoffs

In a temporary layoff, an employer “suspends” an employee’s job, generally because of slack demand. Both the employer and the employee expect their relationship to resume when economic conditions improve. The employer may even help the employee apply for unemployment insurance benefits so that he or she is more likely to wait out the layoff instead of taking another job. When layoffs are temporary, subsequent recalls can take place quickly, fueling fast payroll growth.

By contrast, a permanent layoff severs the relationship between the employer and the employee. The employer eliminates the job for any of a variety of reasons, including a

permanent fall in demand, technological change, reorganization of production, and local or international outsourcing. Even an employer that ultimately decides to fill the job again will need to search for a new employee. Meanwhile, the laid-off worker must find a new job and the employer that hires him or her must create a new position and conduct a search to fill it. Thus, when layoffs are permanent, job recovery is slower.

To assess whether the job losses in the 2001 recession have been mostly permanent or temporary—and thus whether they are indicative of structural or cyclical change—we examine the contribution of temporary layoffs to the unemployment rate. We track this measure over the past six recessions (Chart 2). In the four recessions before 1990, unemployment from temporary layoffs rose throughout the downturn and fell sharply after the trough, adding substantially to the run-up and then the decline in total unemployment. In the 1990-91 and 2001 recessions, by contrast, temporary layoffs contributed little to the path of unemployment. These layoffs barely increased in the 1990-91 recession and figured even less importantly in the 2001 recession.⁵ While the reduced role of temporary layoffs is not proof that structural changes were more prominent during the two most recent recessions, it is clearly consistent with that view.

Job Relocations

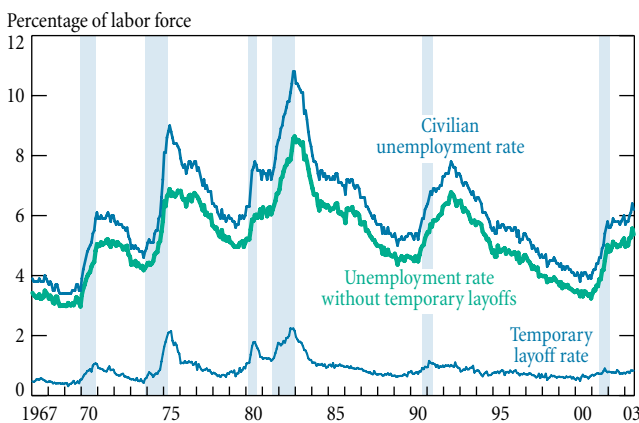
Structural adjustments change the location of jobs in an economy. To determine whether the job adjustments made during the 2001 recession by the seventy major U.S. industries—those identified by two digits in the Standard Industrial Classification (SIC) system—were primarily structural or cyclical, we track the direction of job flows during and after the recession. If an industry's job losses

(or gains) during the recession were quickly reversed once the economy began to recover, we classify the job adjustments as cyclical. If, instead, the outflow of jobs from (or the inflow of jobs to) the industry continued during the recovery, we conclude that the jobs have been permanently relocated and we classify the adjustments as structural. We can then aggregate the adjustments made by individual industries to establish whether structural or cyclical changes predominated.

We apply our method first to the 1980 and 1981-82 downturns, treating this “double-dip” in economic activity as a single recession that began in 1980 and ended in 1982. Chart 3 plots the major industries on a grid in which the horizontal axis measures job growth in the recession and the vertical axis measures job growth in the twelve months of recovery that followed. The position of each industry on the grid reveals whether its job adjustments have been structural or cyclical. Note that the size of the circle representing a given industry reflects that industry's share of all jobs in the economy, measured at the business cycle peak.

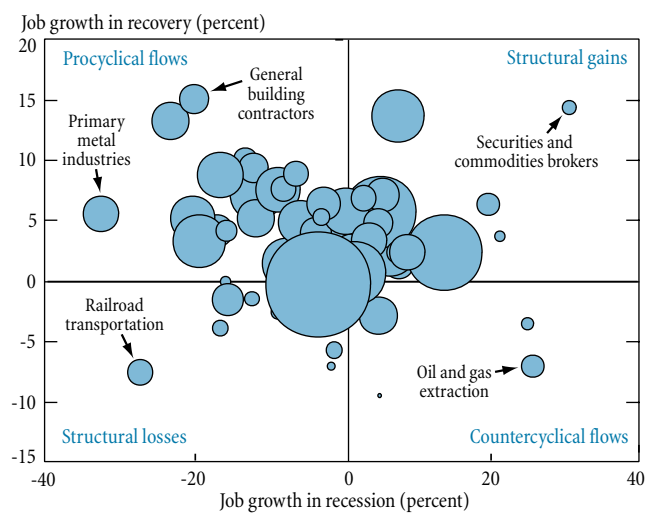
General building contractors and primary metal fabricators had large job losses during the recession, but during the year following, they recouped jobs. Accordingly, these industries appear to the left of the vertical axis and above the horizontal axis. These industries, like the others in the northwest quadrant, had cyclical—or more precisely, *procyclical*—job flows; the job losses and subsequent job recoveries paralleled the contraction and expansion phases of the business cycle.

Chart 2
Contribution of Temporary Layoffs to the Unemployment Rate



Sources: U.S. Bureau of Labor Statistics; authors' calculations.
Note: Shaded areas indicate periods designated recessions by the National Bureau of Economic Research.

Chart 3
Job Adjustments by Industries during the Recession and Recovery of the Early 1980s



Sources: U.S. Bureau of Labor Statistics; authors' calculations.
Note: The 1980 and 1981-82 downturns are treated as one long recession.

In clear contrast, oil and gas extraction firms—in the southeast quadrant—gained jobs during the recession and lost them during the recovery. These adjustments are also cyclical, but because the job gains and losses ran counter to the phases of the business cycle, they are customarily termed *countercyclical*. Countercyclical job flows are rare; indeed, the small number and size of the circles in the southeast quadrant suggest that only a few small industries experienced such flows in the 1980s.

Securities and commodities brokers, positioned in the northeast quadrant, gained jobs during both the recession and the recovery. The continuation of the job gains indicates that this industry grew structurally during the early 1980s.

Finally, railroad transportation, in the southwest quadrant, shed jobs throughout the recession and the expansion. The ongoing loss of jobs means that this industry declined structurally.

A look at the overall distribution in Chart 3 suggests that about half of the industries fell in the cyclical quadrants (northwest and southeast) and half in the structural quadrants (northeast and southwest). Thus, in the 1980-82 recession, it appears that job flows were almost evenly split between structural and cyclical changes.

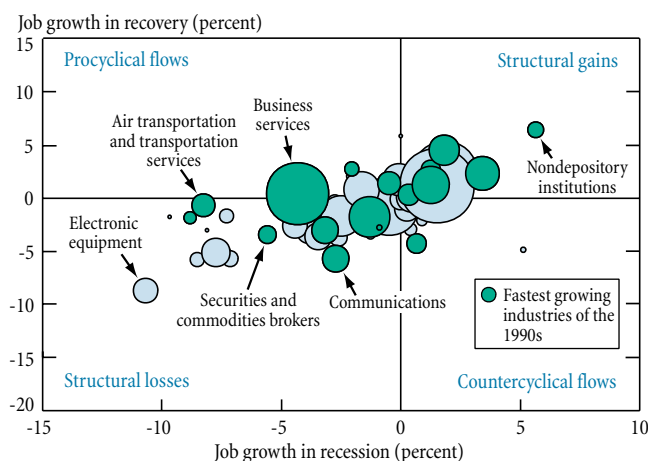
How, then, do the job flows in the 2001 recession and subsequent recovery compare with those in the early 1980s? Chart 4 shows the distribution of major U.S. industries for the recent period. The difference from the pattern of the early 1980s is quite stark: now, the industries cluster heavily in the two structural quadrants. Most of the industries that lost jobs during the recession—for example, communications, electronic equipment, and securities and commodities

brokers—are still losing jobs. Balancing the structural losses of these industries, however, are the structural gains of others. For example, nondepository financial institutions, an industry grouping that includes mortgage brokers, added jobs during both the recession and the recovery. The trend revealed in Chart 4 is one in which jobs are relocated from some industries to others, not reclaimed by the same industries that had lost them earlier. The chart provides persuasive evidence that structural change predominated in the most recent recession.

To get a clearer sense of how the 2001 recession compares with earlier episodes, we add up the shares of employment at the business cycle peak held by industries in each quadrant for recessions in four different periods: the mid-1970s, the early 1980s, 1990-91, and 2001.⁶ Then we compare the shares in the two cyclical quadrants with the shares in the two structural quadrants for each recession (Chart 5). The downturns in the mid-1970s and early 1980s show an even mix of cyclical and structural adjustments. That is, during these episodes, about half of employment was in industries affected structurally and half in industries affected cyclically. The pattern changed in the early 1990s, when industries undergoing structural adjustments increased their share of total employment to 57 percent. The greatest change, however, is apparent in the 2001 downturn, when 79 percent of employees worked in industries affected more by structural shifts than by cyclical shifts.

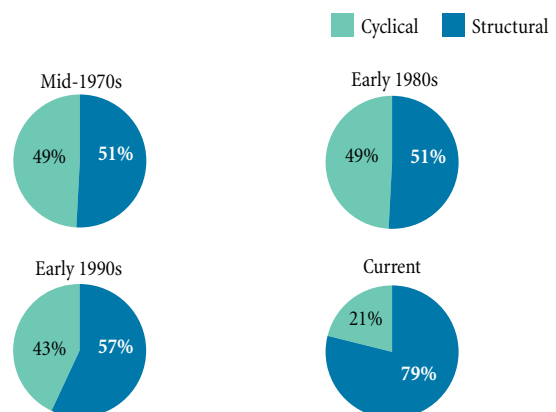
This comparison provides further evidence that the reallocation of employment between industries was the primary pattern in 1990-91 and 2001. Together with our findings on temporary layoffs, it suggests that the two most recent recessions were more strongly structural than recessions past.⁷

Chart 4
Job Adjustments by Industries during the 2001 Recession and Subsequent Recovery



Sources: U.S. Bureau of Labor Statistics; authors' calculations.

Chart 5
Share of Total Employment in Industries Undergoing Cyclical Changes and in Industries Undergoing Structural Changes



Sources: U.S. Bureau of Labor Statistics; authors' calculations.

Reasons for Increased Structural Change

Why might structural changes now account for a larger share of the job losses and gains during recessions? Although a definitive answer to this question must await further research, we outline here three possible “stories” that might explain the dominance of structural shifts: First, the structural decline observed in many industries might be a reaction to a period of overexpansion. Second, improved monetary and fiscal policy may have reduced cyclical swings in employment, leaving structural shifts as the prevailing form of change. Third, innovations in firm management may be promoting a structural shift toward leaner staffing.

According to the first story, industries that attract too much investment during a boom may have to “pay it back” later by reducing their workforce. Some analysts contend, for example, that too much capital was invested in high-tech and telecommunications industries during the late 1990s. If this assessment is correct, then competitive pressures might cause these industries to shrink during the subsequent recession and recovery.

To determine whether such a correction may have taken place, we look for industries that grew rapidly during the 1990s but lost jobs during the 2001 recession and continued to decline during the recovery. In Chart 4, the circles representing the eighteen industries whose employment grew fastest during the 1990s are colored green. Significantly, the chart shows seven of these eighteen industries to be structurally declining.⁸ The large proportion of industries that have switched from fast growth to steady decline suggests that overinvestment in some industries during the 1990s may in fact be a key force suppressing job growth.

The second story suggests that structural adjustments may now dominate job gains and losses because both monetary policy and fiscal policy have become much more effective in damping purely cyclical swings in employment.⁹ If policy successfully counteracted the transmission of fluctuations to the most cyclically sensitive portions of the economy, then the feedback effects from these sectors to others would no longer deepen recessions. Moreover, the remaining fluctuations would likely be structural. The behavior of housing investment and consumer durable goods expenditures in the 2001 recession supports this contention. Normally very susceptible to cyclical changes, these two sectors showed unusual vigor in both jobs and output during the downturn. This display of strength in sectors heavily influenced by monetary policy actions suggests that sound policy may have averted some of the usual cyclical job losses.

According to the third story, new management strategies at firms may be contributing to a structural reduction in some industry jobs by promoting lean staffing as part of a

broader drive to reduce costs and increase efficiency. Employers that have adopted such strategies are likely to see a recession not as an event to be weathered but as an opportunity—or even a mandate—to reorganize production permanently, close less efficient facilities, and cull staff. Many of these employers have also initiated operational changes, such as just-in-time delivery and outsourcing, to smooth fluctuations in employment and swings in inventory and production.¹⁰ Together, these strategic and operational changes could accelerate the pace of structural change.

Other management innovations and labor market trends may have encouraged structural change. Performance-based executive compensation has enhanced managers’ incentives to adopt more efficient staffing and inventory control practices. It is also replacing older systems of compensation that linked pay to the number of employees managed. Workplace constraints and incentives that in the past encouraged temporary layoffs have been eased. For example, fewer employers are now bound by union contracts, which often call for temporary layoffs in the case of slack work. In 1956, 34 percent of private nonagricultural workers were covered by union contracts; in 2002, that figure had slipped to 9.4 percent.¹¹ In addition, rule changes by the federal government during the 1980s prompted states’ unemployment insurance programs to shift more of the costs of frequent layoffs onto the responsible employers—an action that could discourage employers from using temporary layoffs.¹²

Instead of furloughing permanent workers, firms increasingly hire temporary help when they are busiest and then cut back when demand falls. Indeed, firms’ use of temporary or contract employees to smooth labor needs has grown substantially. In January 1972, the personnel supply industry (SIC 7360) had only 214,000 jobs; in September 2000, jobs in the industry peaked at 3,965,000.¹³ All else equal, this approach yields a smaller permanent workforce, more temporary workers, and more permanent layoffs.

Weak Job Creation or Widespread Job Destruction?

Changes in payroll employment are net figures, reflecting the difference between jobs added and jobs eliminated. Without knowing the counts for these two components, we cannot tell whether the recent declines in the payroll numbers stem primarily from weak job creation or from widespread job destruction. A clue, however, comes from the new Job Openings and Labor Turnover Survey (JOLTS), which measures labor market dynamics since December 2000.¹⁴ Annual averages of these data for 2001 and 2002 show that both job layoffs and new job creation (and vacancies) declined slightly in 2002. The drop in layoffs largely rules out the notion that job destruction is the key factor; the drop

in new jobs suggests some role for weak job creation. Other research (Davis, Haltiwanger, and Schuh 1996; Figura 2002a,b) has shown that creation tends to surge during job-growth booms—conditions very unlike those that prevail now.¹⁵ Together, these findings suggest that the reason for the contraction in payrolls could be too few jobs created.

Why might employers be restraining their hiring? Two likely causes are increased uncertainty and financial market weaknesses. Uncertainty can delay or deter firms from hiring new employees and thus lengthen the lags between structural job cuts and new hires. Geopolitical uncertainty arguably increased over the latest recovery at least through March 2003, when the fighting began in Iraq. Another source of uncertainty has been the controversy over corporate governance and accounting standards. Firms preoccupied with the need to identify and establish effective internal controls may defer the creation of new jobs. Finally, structural change itself may have given rise to uncertainty. In periods of rapid change, it is hard for investors, companies, and workers to know which firms and industries will require more jobs.

Financial market weakness can also depress job creation by curtailing firms' investments in job-creating projects. Such "financial headwinds" were blamed for extending the 1990-91 recession and cited as a reason for monetary easing at that time by Federal Reserve Chairman Alan Greenspan.¹⁶ In the current recovery, financial headwinds (particularly for risky new ventures) might arise from the collapse of initial public offerings and venture capital financing, widening corporate bond spreads, and the stock market correction.

Uncertainty and financial headwinds likely constrain new job creation more than they do rehires into old jobs, since the latter are less risky. Thus, regardless of whether these forces are more severe than normal, they may be having a greater impact because of the large job relocations now under way.

Mitigating Factors: Unemployment and Wages

Although the current jobless recovery appears even weaker than the last one, two important indicators suggest that it may be less severe for workers: The unemployment rate remains relatively low, and real wage growth remains high.

Before its jump to 6.4 percent in June 2003, unemployment during this recovery held steady between 5.5 percent and 6.1 percent. This range is both lower and narrower than that observed in the early 1990s. What accounts for the difference? First, self-employment swelled by half a million from March 2002 to April 2003. The newly self-employed are often excluded from payroll job counts, but they also leave the ranks of the unemployed. Second, a fall in labor force participation from its April 2000 peak of 67.4 percent puts the current rate (66.2 percent) at 1993 levels. Discouraged

workers account for just 6 percent of those who have left the labor force. Teenagers, by contrast, make up about half of the net exiters; they are staying in school longer, working less while in school, and studying more during the summer (Kirkland 2002)—all arguably beneficial trends.

The current recovery may also pose fewer hardships for workers because real wages have grown strongly during the recession and recovery, in line with productivity improvements. At 2 percent per year overall, real wage growth is well above 1991-92 rates and the average for postwar recessions.

Conclusion

The period after the 2001 recession will be remembered as the second jobless recovery. Our inquiry into the reasons for the current labor market slump suggests that structural change has played an important role. Industries that lost jobs during the recession have continued to shrink during the recovery, and permanent job losses have eclipsed temporary layoffs.

The largely permanent nature of this recession's job losses could explain why jobs have been so slow to materialize. An unusually high share of unemployed workers must now find new positions in different firms or industries. The task of finding such jobs, difficult and time-consuming under the best of conditions, is likely to be even more complicated now, when financial market weakness and economic uncertainty prevail. In such an environment, firms may hesitate to create new jobs because of the risks involved in expanding their businesses or undertaking new ventures. Some support for this interpretation comes from the findings of the Job Openings and Labor Turnover Survey, which suggest that the current shortfall in payroll growth owes more to low job creation than to widespread job elimination.

Despite the paucity of new jobs, two marked divergences from the 1991-92 recovery may have mitigated the harshness of the current experience for workers: Unemployment is relatively low, and real wage growth has remained surprisingly strong for a recession and recovery.

Although our analysis has focused on the recent past rather than the future, our findings suggest that a return to job growth may require a mix of two ingredients: improved financing options for riskier ventures and resolution of current uncertainties, including time for the dust to settle from all the recent structural changes.

Notes

1. See <http://www.nber.org/cycles/july2003.html> for the July 17, 2003, announcement by the NBER Business Cycle Dating Committee.
2. Schweitzer (2003) and Schreft and Singh (2003) identify additional features of the jobless recovery.

3. Increases in GDP coincided with declines in employment during recoveries in 1951:3 (almost two years after the trough in 1949:4), 1954:3 (one quarter after the trough), 1975:2 (again, one quarter after the trough), 1991:2, 1991:4, and 1992:1 (one, three, and four quarters after the trough, respectively).

4. See Figura (2002b) for an alternative measure of the degree of structural change during business cycles. Unfortunately, his data do not extend to the current recession, are annual, and cover only manufacturing.

5. As Chart 4 suggests, however, the use of temporary layoffs for other adjustments has not fallen off in the same way. For example, employers still use them to furlough workers during slow times for agriculture or tourism.

6. Changes during each recession are measured from NBER peak to NBER trough. We define the recovery period in technical terms, as the first twelve months after each trough. Qualitative results change little, however, if we interpret recoveries in a looser sense—for example, as extending up to the first seventeen months after the trough. To control for different labor force growth during the recessions and recoveries, we subtract average job losses or gains from each industry's change. This procedure centers the distribution of industries around the origin for each recession/recovery. Thus, job changes are measured in relative rather than absolute terms, while the location of the industries relative to each other is preserved.

7. Our results, based on aggregate data, illuminate only the broadest outlines of workers' movements. Further research, using data on individual industries, will be needed before we can fully understand workers' transitions during recent recessions. Moreover, as the expansion progresses, we will be in a better position to see whether the job losses we interpret as structural do in fact persist, or—alternatively—whether the current jobless recovery should be attributed simply to slower than usual employment adjustments.

8. The seven are special trade contractors (SIC 1700), air transportation (SIC 4500), transportation services (SIC 4700), communications (SIC 4800), securities and commodities brokers (SIC 4200), amusement and recreation services (SIC 7900), and museums, botanical gardens, and zoos (SIC 8400).

9. For the argument that monetary policy is now geared more directly toward reducing fluctuations in output and inflation, see Boivin and Giannoni (2002).

10. For the argument that technological improvements in inventory management explain much of the reduced variability of output, see Kahn, McConnell, and Perez-Quiros (2002) and McConnell, Mosser, and Perez-Quiros (1999).

11. See Freeman and Medoff (1984, p. 221) and "Union Members in 2002," USDL 03-88 <[ftp://ftp.bls.gov/pub/news.release/union2.txt](http://ftp.bls.gov/pub/news.release/union2.txt)>, February 25, 2003.

12. See Vroman (1989) for a discussion of the history and issues relating to the experience rating of unemployment insurance.

13. According to Bureau of Labor Statistics payroll data, during the 2001 recession, personnel supply jobs shrank by 14.5 percent. This industry accounted for 531,000 payroll job losses, or 39 percent of the total.

14. For a description of the JOLTS data, see <<http://www.bls.gov/jlt>>.

15. Davis, Haltiwanger, and Schuh (1996) study gross job flows in manufacturing during the 1970s and 1980s. Figura (2002a,b) uses the same data, extended through 1991.

16. See the mention of "fifty-mile-an-hour headwinds" in "Performance of the U.S. Economy," Greenspan's testimony before the Committee on the Budget, U.S. Senate, January 21, 1997, available at <<http://www.federalreserve.gov/boarddocs/testimony/1997/19970121.htm>>.

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