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The "Jobless Recovery" From the 2001 Recession: A Comparison to Earlier Recoveries and Possible Explanations

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Marc Labonte
Analyst in Macroeconomics
Government and Finance Division

Linda Levine
Specialist in Labor Economics
Domestic Social Policy Division

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Summary

The National Bureau of Economic Research determined that the tenth recession in the post-World War II era ended in November 2001 based upon its assessment that most of the relevant economic variables had since shown sustained improvement. Labor market data were the aberration. This report examines the period from November 2001 to August 2003, when private nonfarm sector employment declined by 1.3 million. Beginning in September 2003, employment began a sustained increase. The labor market was also slow to rebound after the recession of the early 1990s, and the term "jobless recovery" was coined. Since this has occurred twice in a row and is in contrast with the historic pattern following most other recessions, there is concern that the two recoveries might indicate a trend rather than an anomaly.

The labor market indeed rebounded more slowly than usual coming out of the 2001 recession. For example, during just two of the previous nine recoveries, the unemployment rate worsened for more than a year (14 and 16 months). At 19 months through June 2003, the rise in the unemployment rate persisted for longer than any other post-war recovery. The weakness of employment is even more unusual. Employment declined by 1.2% after the recession ended, declining for the first 21 months of the recovery. The second largest decline in the post-war period was a 0.6% decline that lasted 11 months into the recovery from the 1990-1991 recession. Typically, employment rebounds within three months after a recession has ended.

The most compelling explanation for the jobless recovery is the weakness of aggregate spending during the recovery. Growth in the first seven quarters of a recovery typically exceeds 5%; in the jobless recovery it averaged 2.6%, below the sustainable growth rate. The nation has undergone a number of shocks since 2001 that could have depressed spending, including oil shocks, the stock market crash, the corporate scandals, September 11, and the Iraqi War. Some claim that strong productivity growth is reducing employment; but productivity growth would not depress demand as long as the recipients of the income generated by productivity growth, a firm's workers or investors, quickly spend it on consumption or capital investment. Another explanation of the jobless recovery that has been offered is the argument that sectoral shifts in employment have recently been unusually high, and this has temporarily depressed overall employment; this argument is difficult to verify.

It is also possible that the rise in the unemployment rate is caused by a rise in the nation's long-run "natural rate" of unemployment, determined by the nation's labor market characteristics and policies. The natural rate of unemployment is unemployment that is unrelated to temporary changes in the business cycle. It is unusual for the natural rate to significantly change in a couple of years. If the natural rate is playing a role today, it is more likely because unemployment was further below the natural rate than previously suspected in the late 1990s, and is now returning to the natural rate. This report will not be updated.

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The Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) determined that the tenth recession in the post-World War II era ended in November 2001, a scant eight months from its inception in March. The more than 9 million people who remained unemployed and the more than 4 million people who wanted full-time jobs but remained in part-time positions more than one-and-a-half years since the recession's end were unlikely to agree with its assessment. Nonetheless, the committee concluded that — aside from data on labor market conditions — the economic variables it takes into account to determine the turning points in the business cycle (e.g., real personal income) had shown sufficient, sustained improvement to declare November 2001 the beginning of a recovery period.[1]

After the not-quite-as-brief and not-quite-as-mild recession of the early 1990s, the labor market was similarly slow to rebound. The 1990-1991 recession became widely known as having been followed by a *jobless recovery*, the same appellation being applied to the current situation.[2] The fact that this has occurred twice in a row and seemingly contrasts with the historic pattern following other recessions has prompted concern that these two recoveries might be a trend rather than an anomaly. It has also prompted concern that the jobless recovery could presage another period of economic contraction in the near future.

This report begins by examining the labor market situation at the trough of the jobless recovery compared to the 2001 peak and trough in the business cycle. It then compares the behavior of selected labor market indicators during the recovery with their behavior during earlier post-World War II recoveries. The report concludes by exploring explanations that have been offered for the differences.

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[1] Jon E. Hilsenrath, "Despite Job Losses, the Recession Is Finally Declared Officially Over," *The Wall Street Journal*, July 18, 2003. Note: The article reports that the anomalous behavior of employment was the major point of contention within the committee on choosing a date.

[2] Although the 1991 recovery is frequently referred to as the first jobless recovery, there was one earlier recession that followed a similar pattern: after the 1969-1970 recession, unemployment rose for 14 months.

A Look at the Labor Market at the Trough of the Jobless Recovery

To gauge the extent of the jobless recovery, it is useful to compare its trough (August 2003) with the trough (November 2001) and the preceding peak (March 2001) in the business cycle. By almost any indicator in **Table 1**, workers on average were worse at the trough of the jobless recovery than at the end of the recession.

Unemployment

As shown in **Table 1**, there were about 1 million *more* persons unemployed at the trough of the jobless recovery than at the bottom of the business cycle (9.0 million and 8.0 million, respectively). The unemployment rate was higher (6.1% in August 2003, a peak of 6.3% in June 2003) than it was at the end of the recession (5.6%) and was about 2 percentage points above its level at the pre-recession peak (4.3%). At 21 months into the current recovery, the unemployment rate was above the level it reached at a comparable point during five of the eight preceding recoveries.[3] (The recovery from the 1980 recession is excluded from the total number of postwar recessions in this instance because another recession began a year after its end.)

The jobless rate fluctuated in a narrow range (5.6%-6.0%) for more than a year after November 2001. Not until some 900,000 people searching for work joined the labor force between the first and second quarters of 2003 did the unemployment rate rise above 6.0%. The growth of the labor force (i.e., the number of people employed and the unemployed) had been so small up until then that it exerted limited upward pressure on the unemployment rate despite substantial job losses.[4] In fact, the rise in the unemployment rate would have been larger if it were not for the decline in the proportion of the population in the labor force, a decline that actually began before the recession. Other recessions, in contrast, saw little or no decline in the labor force participation rate.[5]

Another indicator of conditions in the labor market is how quickly people are able to find jobs. In August 2003, as seen in **Table 1**, the average time a worker spent unemployed was 19.2 weeks. In contrast, jobseekers were able to become employed 4.8 weeks faster, on average, at the trough of the business cycle. The average duration of unemployment thus lengthened more during the jobless recovery

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[3] Although the unemployment rate was always falling 21 months into the current recovery, its level varied greatly at comparable periods in earlier recoveries. The unemployment rate was above 7% at comparable points in the recoveries of the 1970s and 1980s, and below 5% in the recoveries of the 1940s, 1950s, and 1960s.

[4] The unemployment rate is defined as the number of people in the civilian noninstitutional population age 16 or older who do not have jobs *and* who are actively seeking employment, divided by the number of people age 16 or older in the civilian labor force.

[5] Mark Schweitzer, "Another Jobless Recovery?," *Economic Commentary*, Federal Reserve Bank of Cleveland, March 2003.

(4.8 weeks) than it did during the recession (1.5 weeks).[6] Similarly, the share of unemployed workers who had not held a job in at least 27 weeks (22.4% in August 2003) exceeded levels recorded in March 2001 (11.2%) and November 2001 (14.3%).

Discouraged Workers

It often has been noted that the unemployment rate does not fully reflect the state of the labor market because it measures only the extent of joblessness among those in the labor force. In light of the marked decrease in the fraction of the population that either has a job or has actively sought a job in the four weeks before the monthly administration of the Current Population Survey (CPS), this is a very salient point at the present time: between November 2001 and August 2003, the proportion of the civilian noninstitutional population age 16 or older that was in the labor force (i.e., the labor force participation rate) fell by 0.5 percentage point to 66.2%.[7] As previously mentioned, it was not until people surged into the labor force in second quarter 2003 that the unemployment rate rose above 6.0%.

People who are able and willing to work may not recently have sought a job for a variety of reasons, in which case they would not be officially classified as unemployed. Some may not have searched for reasons unrelated to economic conditions (e.g., child care or transportation problems). For others — who perhaps have themselves experienced a lengthy spell of unemployment or who have repeatedly heard of major corporations announcing layoffs involving thousands of workers[8] — the reason could be discouragement over their employment prospects (e.g., because they think no work is available or because they lack education or training).

In August 2003, about 500,000 people were not seeking jobs because they believed looking was futile.[9] This marked the highest level of worker discouragement for the month of August since the CPS underwent substantial revisions in 1994, the first year for which comparable data are available. There were significantly more discouraged workers in August 2003 (503,000) than in August 2002 (378,000), and more in August 2002 than mid-way through the 2001 recession (337,000).[10]

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[6] For a discussion of the relationship between the average duration of unemployment and the unemployment rate following recessions see Daniel Sullivan, "Unemployment Duration and Labor Market Tightness," *Chicago Fed Letter*, Federal Reserve Bank of Chicago, n. 103, March 1996.

[7] Data available at U.S. Bureau of Labor Statistics' website [http://stats.bls.gov.]

[8] For information of mass layoff activity see CRS Report RL30799, *Unemployment through Layoffs: What Are the Reasons?* by Linda Levine.

[9] BLS data refer to individuals who looked for a job during the prior 12 months and were available to take a job during the reference week of the CPS, i.e., those who show some attachment to the labor force.

[10] Unlike the other variables included in this report, monthly data on discouraged workers

(continued...)

Table 1. Selected Labor Market Statistics During the 2001 Recession and Jobless Recovery

Variable	Employment Trough	Business Cycle Peak and Trough	
	August 2003	March 2001	November 2001
Number of unemployed persons	8,966,000	6,136,000	8,020,000
Unemployment rate	6.1	4.3	5.6
Average weeks of unemployment	19.2	12.9	14.4
Persons unemployed at least 27 weeks as a share of total unemployment	22.4	11.2	14.3
Employed persons as a share of the population	62.2	64.3	63.0
Persons employed part-time (1-34 hours a week) who would prefer full-time jobs	4,498,000	3,279,000	4,337,000
Employees on nonfarm payrolls in the private sector[a]	108,209,000	111,564,000	109,535,000
Average weekly hours of workers on private nonfarm payrolls[b]	33.7	34.1	33.8
Average weekly overtime hours of production workers in manufacturing industries	4.1	4.1	3.7

Source: U.S. Bureau of Labor Statistics (BLS). All but the last three variables in the table are derived from the Current Population Survey, a survey of households. The last three variables come from BLS' establishment survey, which queries employers rather than the population.

[a] This reflects the number of jobs at establishments in the private nonfarm sector rather than the number of people employed throughout the economy (e.g., a person may have a job at more than one firm and some individuals are self-employed).

[b] Hours relate to production and nonsupervisory workers, who represent the majority of all jobholders.

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[10] (...continued)
are not adjusted for seasonal factors. Therefore, comparisons across different months cannot be made.

Employment

Switching to the employment side of the equation does not reveal a more sanguine picture. (See **Table 1**.) Fewer members of the population had jobs (62.2%) in August 2003 compared to the fraction either at the outset of the recession (64.3%) or at its end (63.0%). (As mentioned above, the unemployment rate is affected by changes in the size of the labor force, which does not affect the employment-to-population ratio.)

Employment, as measured by the number of employees on nonfarm payrolls in the private (non-government) sector, continued to contract for the first 21 months of the recovery. At that point, there were 1.3 million *fewer* jobs than there were at the recession's end. The economy would need to add 3.3 million jobs to August 2003's total to equal the number that existed at the outset of the recession.[11]

Manufacturers had been laying off employees since July 2000, well before the recession began; and the jobless recovery did not reverse the job cutbacks. Manufacturers shed 1.4 million jobs during the jobless recovery, according to BLS data. The continuing difficulties of one segment of the "information technology (IT) industry" can be seen at firms that manufacture computer and electronic products, where nearly 250,000 jobs have disappeared since the recession's end. On the software side of the IT industry, another 100,000 jobs were lost at firms in the service-producing sector that provide computer system design and related services. The continuing impact of the burst dot-com or internet bubble can be seen in the sector's information services component, which employs many workers with IT skills: during the jobless recovery, telecommunications providers have let go about 150,000 workers; internet service providers, search portals, and data processing firms have terminated 35,000 employees; and internet publishers and broadcasters have separated almost 5,000 workers from their payrolls — for a total of 175,000 fewer jobs. These losses and those in other segments of the service-producing sector (e.g., retail trade and transportation) have offset job growth elsewhere in the sector (e.g., health services and temporary help services). As a result, the private service-producing sector as a whole eked out a 164,000 job gain during the jobless recovery.[12]

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[11] As measured by the Current Population Survey (CPS), which surveys individuals rather than firms, employment followed a somewhat different pattern. According to the CPS, the jobless recovery ended in July 2002 (although employment fell again in late 2002). Most economists consider the establishment survey a better source of data than the CPS because it is a much larger survey and its respondents are thought to be more reliable. The CPS also cannot be used to make comparisons over long periods of time because of periodic population re-estimates. However, the CPS does include self-employed individuals, which the establishment survey does not. See Daniel Aaronson, Ellen Rissman, Daniel Sullivan, "Assessing the Jobless Recovery," *Economic Perspectives*, Chicago Federal Reserve, vol.28, second quarter 2004.

[12] For a comparison of employment trends by industry during pre-2001 recessions and recoveries see William E. Cullison, "The Case of the Reluctant Recovery," *Economic Review*, Federal Reserve Bank of Richmond, July-Aug. 1992.

Underemployment and Hours Worked

As with the unemployment rate, it is thought that changes in employment do not fully reflect the conditions faced by workers. Some individuals are underemployed, that is, they accept part-time jobs (i.e., 1-34 hours a week) despite their preference for full-time positions. In August 2003, as shown in **Table 1**, some 4.5 million part-timers wanted full-time jobs, which is about 1.2 million more underemployed persons than in March 2001 and 0.2 million more than in November 2001.[13]

Employers have not only continued to cut employees from their payrolls since the recession's end, but they also have not generally lengthened employees' workweeks.[14] After expanding by 12 minutes from 33.8 hours in November 2001 to a peak of 34.0 hours in June 2002, the average workweek held at about 33.8 hours through March 2003. It then contracted, and in August 2003 was 33.7 hours on average, or 6 minutes shorter than at the outset of the recovery.

The overtime hours of factory workers (which are included in the workweek total) have followed a similar path, that is, elevated during 2002 but then falling during the last several months of 2003.[15] Nonetheless, factory workers were still putting in slightly more overtime than they had at the start of the recovery (a total of 4.1 hours per week as compared to 3.7 hours, respectively).

Comparison of the Current Recovery to Past Recoveries

As can be seen in **Table 2**, there has always been some lag time before the unemployment rate showed sustained improvement coming out of a recession, but never as long as in the current recovery. In all but two of the previous nine recoveries, the unemployment rate began to decline within six months of the recession's end. The exceptions are the recoveries that followed the 1969-1970 and 1990-1991 recessions, during which the unemployment rate continued to climb for 14 months and 16 months, respectively. At 20 months through July 2003, then, the current lag in the unemployment rate showing steady progress is unusually long. The three recessions that were followed by a jobless recovery, based on this criterion, are three of the four mildest recessions in post-war history. The fourth was the short recession of 1980. (The relationship between the strength of recessions and

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[13] For information on the long-run increase in involuntary part-time employment, see CRS Report 98-695, *Part-Time Job Growth and the Labor Effects of Policy Responses: An Overview*, by Linda Levine.

[14] For information on the long-run decrease in the length of the workweek, see Katie Kirkland, "On the Decline in Average Weekly Hours Worked," *Monthly Labor Review*, July 2000.

[15] Overtime has been identified as a leading indicator for changes in employment. If this relationship holds, it would suggest some decline in manufacturing employment in the months ahead. See Stephen Stanley, "Manufacturing Employment and Overtime," *Cross Sections*, Federal Reserve Bank of Richmond, vol. 9, no. 2, summer 1992.

recoveries is discussed in *Explanations for the Jobless Recovery*, which appears later in the report.)

Table 2. The Unemployment Rate Following Recessions

Trough of Business Cycle		Unemployment Rate		
Date	**Unemployment Rate**	**Unemployment Rate Began Sustained Improvement**	**Unemployment Rate**	**Number of Months from Trough**
Oct. 1949[a]	7.9	Jan. 1950	6.5	3
May 1954	5.9	Oct. 1954	5.7	5
Apr. 1958	7.4	Aug. 1958	7.4	4
Feb. 1961	6.9	Aug. 1961	6.6	6
Nov. 1970	5.9	Jan. 1972	5.8	14
Mar. 1975	8.6	June 1975	8.8	3
July 1980	7.8	Aug. 1980	7.7	1
Nov. 1982	10.8	Jan. 1983	10.4	2
Mar. 1991	6.8	July 1992	7.7	16
Nov. 2001	5.6	July 2003	6.2	20

Source: U.S. Bureau of Labor Statistics data from the CPS; business cycle dates determined by NBER.

[a] Two strikes occurred in October 1949, which inflated the unemployment rate in that month. (Before 1967, strikers were counted as unemployed.) In September 1949, before the strikes began, the unemployment rate had been 6.6%.

Policymakers are interested not only in changes in the unemployment rate, but also in the proportion of persons who experience long periods without work. The federal-state unemployment compensation system provides income for varying lengths of time to those displaced workers who meet differing state eligibility criteria. In response to some past recessions and the 2001 recession, Congress provided additional funds to workers who had been jobless for so long that they exhausted their regular unemployment benefits.[16] It appears that during the latest recovery the fraction of workers unemployed for at least 27 weeks may have peaked in November

[16] CRS Report RL31277, *Temporary Programs to Extend Unemployment Compensation*, by Jennifer E. Lake. Note: Congress also has passed legislation to mitigate the labor market impact of some recessions by directly creating jobs. For more information, see CRS Report RL31138, *Countercyclical Job Creation Programs of the Post-World War II Era*, by Linda Levine.

2003 at 23.5%, 24 months after the trough of the recession — a later peak than in any other post-war recession and the second largest share in the post-war period, even though many of the other recessions were deeper. (See **Table 3**.)

Table 3. Long-Term Unemployment during Recoveries

Trough of Business Cycle		Recovery Period		
Date	**Share of Unemployed Without Jobs for at Least 27 Weeks**	**Date Share of Long-term Unemployment Peaked**	**Peak Share of Long-term Unemployment**	**Number of Months from Trough**
Oct. 1949	7.8	April 1950	13.4	6
May 1954	8.5	Feb. 1955	14.7	9
Apr. 1958	10.5	Sept. 1958	20.7	5
Feb. 1961	13.7	July 1961	19.9	5
Nov. 1970	6.7	April 1972	13.6	17
Mar. 1975	9.7	Feb. 1976	21.0	11
July 1980	10.7	Jan. 1981	15.7	6
Nov. 1982	19.5	June 1983	26.0	7
Mar. 1991	11.1	Oct. 1992	23.1	19
Nov. 2001	14.3	Nov. 2003	23.5	24

Source: U.S. Bureau of Labor Statistics data from the CPS; business cycle dates determined by NBER.

Rather than utilizing unemployment data to determine whether a recovery is jobless, one could analyze how employment has fared in the post-war recessions and recoveries. Employment (measured in the establishment survey as the number of jobs) and unemployment (measured in the CPS, which counts individuals) need not move together since the latter is affected by changes in the size of the labor force. Looking at employment data, the difference between the last two recoveries and the other post-war recoveries is even more pronounced. Historically, employment has been more of a coincident indicator of economic activity, and less of a lagging indicator, than the unemployment rate. Employment typically began to increase in the month the recovery began, and at most three months after the recession had ended. The last two recoveries have been quite a different story. As shown in **Table 4**, employment did not reach a trough until 11 months after the 1990-1991 recession had ended. Employment reached its trough 21 months after the end of the 2001 recession.[17]

[17] For a similar historical comparison see Stacy Schreft and Aarti Singh, "A Closer Look at (continued...)

Table 4. Decline in Employment in the Non-Farm Private Sector During the Post-War Recessions and Recoveries

Recession Dates	Percent Decline in Employment During Recession	Percent Decline in Employment After Recession Ended	Number of Months That Employment Declined After Recession Ended	Date Employment Surpassed Previous Peak
Nov. 1948-Oct. 1949	6.2	0.0	0	Aug. 1950
July 1953-May 1954	3.8	0.5	3	July 1955
Aug. 1957-Apr. 1958	4.9	0.4	2	July 1959
Apr. 1960-Feb. 1961	2.1	0.0	0	Feb. 1962
Dec. 1969-Nov. 1970	1.8	0.0	0	Dec. 1971
Nov. 1973-Mar. 1975	2.7	0.4	1	June 1976
Jan. 1980-July 1980	1.4	0.0	0	Feb. 1981
July 1981-Nov. 1982	3.4	[a]	1	Oct. 1983
July 1990-Mar. 1991	1.3	0.6	11	May 1993
Mar. 2001-Nov. 2001	1.9	1.2	21	—

Source: U.S. Bureau of Labor Statistics data from the establishment survey; recessions dated by NBER.

a. less than 0.1%.

Another measure of employment recovery is the date in which post-recession employment surpasses its previous peak. By this measure, the last two recoveries stand out as unusually sluggish. Not until May 1993 did employment surpass its previous peak in March 1990, 26 months after the 1990-1991 recession had ended. (See **Table 4**.) As of July 2004, 32 months after the 2001 recession ended, employment is still more than 1 million below its February 2001 peak. After every other post-war recession, employment surpassed its previous peak 10-15 months after the recession had ended.

Another important difference in the past two recoveries is that a significant portion of the decline in employment occurred after the recession had ended. As measured by the change in employment during the recession itself, the 2001 recession ranks as the third mildest recessions in the post-war period, with less than a 2% decline. Yet, the post-recession decline in employment through August 2003 is by far the largest of the post-war period (1.2%).

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[17] (...continued)
Jobless Recoveries," *Economic Review*, Federal Reserve Bank of Kansas City, second quarter, 2003.

Explanations for the Jobless Recovery

Inadequate Aggregate Demand

In the short run, the unemployment rate is very sensitive to changes in economic growth. Although the recession ended in November 2001, the recovery has been unusually weak. Growth was below its sustainable rate for four of the first six quarters of the recovery.[18] At the least, one would not expect unemployment to fall when growth is weak, and it is not surprising to see it rise.

The current recovery has not followed the pattern of most post-war recoveries, which featured post-recession booms. Part of the reason the recovery has been unusually mild is that the recession was so mild. In the first 3 quarters of 2001, output contracted by a cumulative 0.6% of gross domestic product (GDP), making it the mildest recession of the post-war period. After a deep recession, output can be rapidly increased because there are many existing unutilized labor and capital resources that can be brought back into production when aggregate spending recovers. Because the contraction in output was negligible in 2001, following this recession, there were far fewer idle resources to be put back into use.[19] A look at the historical record confirms this hypothesis (see **Table 5**). Unemployment peaked seven quarters after the recovery began. At a similar stage in the recovery, there were only two other post-war recoveries besides the current one in which average growth was 3.1% or below: the recoveries beginning in 1970 and 1991. Altogether, the mild recoveries followed three of the five mild post-war recessions, in which output declined by less than 2%.[20] In every other recovery, the average growth rate exceeded 5% at a comparable point.

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[18] The sustainable rate of growth is the rate at which additions to the labor force, capital stock, and technical efficiency can increase output in the long run when the economy is at full employment. Most economists today put the sustainable growth rate for the United States at 3%-3.5%.

[19] Capacity utilization data tell a different story. The fall in capacity utilization in this recession was much larger than the fall in output, and this suggests there are potentially more idle resources to be brought back into use in the recovery. Annually, capacity utilization fell from 82.7% in 2000 to 74.6% in the third quarter of 2003. This is larger than the decline during the 1990-1991 recession and similar to the decline during the 1981-1982 recession. The capacity utilization data cover only the industrial sector, however, which was harder hit than the service sector in the 2001 recession. If similar data were available for the service sector, it would presumably show a much smaller decline.

[20] The unusual behavior of growth in the 1949 recession and subsequent recovery is attributable to the demobilization of the wartime economy. The 1980 recession is omitted from this discussion because the subsequent recovery lasted less than 7 quarters.

Table 5. Economic Growth in Recession and First Seven Quarters After the Recession Ended

Recession		Recovery	
Period	**Percent Decline in GDP (cumulative)**	**Period**	**GDP Growth Rate (annualized)**
1949:1-1949:4	-1.6	1950:1 — 1951:3	10.8
1953:3-1954:1	-2.7	1954:2 — 1955:4	5.7
1957:4-1958:1	-3.7	1958:2 — 1959:4	6.0
1960:2-1960:4	-1.6	1961:1 — 1962:3	5.9
1969:4-1970:1	-0.6	1970:2 — 1971:4	2.5
1973:3-1975:1	-3.0	1975:2 — 1976:4	5.0
1981:4-1982:3	-2.9	1982:4 — 1984:2	6.8
1990:3-1991:1	-1.5	1991:2 — 1992:4	3.1
2001:1-2001:3	-0.6	2001:4 — 2003:2	2.6

Source: U.S. Bureau of Economic Analysis.

Note: For the purposes of this table, the recession is dated as beginning in the first quarter of negative growth and the recovery is dated as the first quarter of positive economic growth. Data for the 1980-1981 recovery are omitted because the 1981-1982 recession began less than 7 quarters after the 1980 recession ended.

The correlation between mild recessions and mild recoveries also holds when measured by employment. There were only four post-war recessions in which employment decreased by less than 2%: 1969-1970, 1980, 1990-1991, and 2001 (see **Table 4**). Unsurprisingly, all three of the recoveries in which the unemployment rate continued to rise for six months or more are included in this group (see **Table 2**), with only the 1980 recovery leading to a quick decline in unemployment (followed shortly thereafter by another recession).[21]

What initially held the current recovery back? The economy faced a number of unusual shocks after the recession ended. Before the recession began, oil prices more than doubled on an annual basis. They dipped a little in 2002, but increased again

[21] These results are consistent with an economic rule of thumb known as Okun's Law, which roughly relates changes in economic growth to changes in the unemployment rate. In one version of Okun's Law, the unemployment rate will rise if economic growth is not rapid enough to accommodate growth in productivity and the labor force. If the potential growth rate of productivity is 2.5% and the labor force grows at 1% a year, then unemployment will rise when economic growth is below 3.5%. As can be seen in Table 5, Okun's law correctly predicts all three of the post-war jobless recoveries (1970, 1991, 2001). See CRS Report RS21139, *Unemployment and Economic Growth*, by Brian Cashell.

in the months heading up to the war in Iraq. Oil spikes temporarily reduce aggregate production by increasing the price of an important input in the production process and reduce aggregate spending if the shift in income to foreign oil producers is not quickly spent on American goods and services.[22] The recession also coincided with a large decline in equity prices (e.g., the Standard and Poor's 500 Index fell 45% from peak to trough), which began to recover only in early 2003. This reduced the willingness or ability of firms to borrow to finance new investment spending and reduced personal consumption through a negative wealth effect. Toward the end of the recession, September 11 occurred. This may have weakened consumer and investor demand by creating uncertainty and reducing confidence. It also caused large sectoral shifts on the production side of the economy, with long lasting effects on certain industries such as the airlines, tourism, and insurance, and certain regions, such as New York City.[23] The recovery was also buffeted by the corporate governance and accounting scandals set off by the Enron bankruptcy, which undoubtedly reduced investment spending and equity prices further. Finally, the lead-up to military action in Iraq was thought to harm the economy both through the oil price channel outlined above and by further reducing consumer and investor confidence.

It is difficult to quantify many of these effects since they were each unique and of a qualitative nature. Some of them may have been relatively insignificant in relation to overall economic activity. Nevertheless, added up, it is impressive how many negative events harmed the economy in 2001-2002, compared to how few positive events there were to offset them. To the extent that these events heightened uncertainty, they may have made employers less willing to quickly expand their workforces than they otherwise would have been.[24] Still, it is somewhat surprising that the economy has not reacted more quickly to the large stimulus provided by monetary and fiscal policy over the past two years. During that time, the federal funds rate was reduced from 6.5% to 1% and the budget moved from a surplus of 1.3% of GDP in 2001 to a deficit of 3.5% of GDP in 2003.

During recessions, firms engage in what economists call "labor hoarding." Rather than laying off enough workers so that the remaining workforce is fully employed in a downturn, firms prefer to keep more workers than output requires because it is less costly than hiring and training new workers when the economy recovers.[25] It is possible that more labor hoarding occurs in shallow recessions, and firms are forced to make larger layoffs in deep and prolonged recessions. If so, that

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[22] See CRS Report RL31608, *The Effects of Oil Shocks on the Economy: A Review of the Empirical Evidence*, by Marc Labonte.

[23] See CRS Report RL31617, *The Economic Effects of 9/11: A Retrospective Assessment*, coordinated by Gail Makinen, and CRS Report RL31250, *The Worker Adjustment and Retraining Notification Act (WARN)*, by Linda Levine for data on mass layoffs resulting from the terrorist attacks.

[24] Bharat Trehan, "Why Has Employment Grown So Slowly?," *Weekly Letter*, Federal Reserve Bank of San Francisco, no. 93-14, Apr. 9, 1993.

[25] The seminal article on labor hoarding is Walter Oi, "Labor as a Quasi-Fixed Factor," *Journal of Political Economy*, vol. 70, no. 6, Dec. 1962, p. 538.

implies that firms will initially need to make fewer hires following a mild recession since the initial increase in output can be met by the previously underutilized "hoarded" workers. This offers one reason why shallow recessions followed by shallow recoveries would initially lead to less hiring. It is difficult to test this theory empirically, however, since there is no meaningful way to measure labor hoarding.[26]

What Role Does Productivity Play?

It has been argued that strong productivity growth can explain why firms did not hire in the jobless recovery.[27] According to this argument, strong productivity growth allows firms to meet increases in final demand from their existing workforce, so they have no need to hire new workers. Strong productivity growth has been described as a mixed blessing because, so the argument goes, firms would have to make more hires if productivity growth were weaker. The productivity-induced weakness in labor markets is then blamed for the sluggish recovery on the grounds that it has caused workers to be too uncertain about the employment outlook to spend robustly.[28]

While it is true that productivity growth has been strong enough to increase output without any increase in employment, this argument confuses cause and effect. Increased productivity does not automatically cause production (supply) to outpace spending (demand). Higher productivity creates higher income for the firm that flows either to its workers or its investors (a firm's owners, creditors, and shareholders). As long as the recipients then spend their higher income on consumption or capital investment, increases in supply will be quickly matched by increases in demand.[29]

The real issue then is the forces holding back aggregate demand, the subject of the previous section, despite the increases in productivity that are boosting output. And the strong productivity gains make demand seem stronger than it is in a casual comparison to the past. Economic growth is caused jointly by increases in the labor force, which grows at a fairly steady 1% a year, and increases in productivity (due to

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[26] One measure that seems to confirm this theory is the ratio of job losers to total unemployed. If firms are hoarding labor, then there should be a smaller increase in the ratio of job losers to total unemployed. There was a much larger increase in this ratio in the deep recessions of 1973-1975 and 1981-1982 than in the mild recessions of 1969-1970, 1990-1991, and 2001.

[27] This argument is made, for example, in "A Jobless Recovery?," *Time Magazine*, July 15, 2002, p.Y9.

[28] It is interesting to note that in the late 1990s, many economists were arguing that faster productivity growth was temporarily *reducing* the unemployment rate. They argued that workers, who had not anticipated the increase in productivity growth, were raising their wage demands too slowly. This made labor relatively inexpensive and led firms to hire more workers. For example, see Laurence Ball and Gregory Mankiw, "The NAIRU in Theory and Practice," *Journal of Economic Perspectives*, vol. 16, no. 4, fall 2002.

[29] This assumes that the Federal Reserve Board will allow monetary policy to accommodate the increase in supply. With the federal funds rate at its lowest point in decades, it is difficult to argue that such an accommodation did not occurred.

capital investment or efficiency gains). From the mid-1970s to the mid-1990s, when productivity was growing at about 1.5% a year, the economy could grow at 2.5% without an increase in the unemployment rate. Now that the productivity growth rate seems to have increased, a 2.5% economic growth rate is no longer sufficient to keep the unemployment rate stable, and no longer indicates that demand is growing quickly enough to keep production at full employment.

A Change in the Natural Rate of Unemployment

Another possible explanation for why the unemployment rate has risen for so long during this recovery is that the economy's natural rate of unemployment is rising, independent of the effects of changes in aggregate spending.

In the long run, the economy always adjusts so that aggregate spending (demand) matches aggregate production (supply). The unemployment rate that would prevail in this situation is called the natural rate of unemployment. When unemployment is at the natural rate, none of the unemployment is caused by weak economic growth. Rather, workers are unemployed because they are either in the process of moving from one job to another or their skills are incompatible with the jobs available in the local area. In other words, the natural rate of unemployment is caused by the supply side of the labor market. The natural rate can change over time as the characteristics of the labor market change. For example, since older workers have a lower unemployment rate than younger workers, as the population ages, the natural rate of unemployment would automatically decline. The natural rate can also change if labor market policies alter the characteristics of the labor market. For example, most economists believe that the natural rate in the United States is about half the rate in many Western European countries because the U.S. labor market is more flexible. In the United States, it is easier for a firm to alter the size of its workforce, there is a less generous social safety net, and there is more regional labor mobility.[30]

Because the natural rate is a long-run concept, it is difficult to believe the natural rate could have changed significantly over the past two-and-a-half years. There has not been any major change in labor market policy during that time, and demographic changes are incremental. If the natural rate has changed, it would be part of a longer trend that will not be identifiable in the near term.

There is another reason why the unemployment rate might have continued to rise for so long related to the natural rate concept. Even if the natural rate had not changed over the past two-and-a-half years, it is possible that when unemployment reached 3.9% in December 2000, it was further below the natural rate than suspected. Just as the unemployment rate can temporarily rise above its natural rate when growth is too slow, unemployment can temporarily fall below the natural rate when growth is unsustainably fast. In these circumstances, one would expect to see a rising inflation rate as wages are pushed above productivity because too many jobs are chasing too few workers. Few economists believed the natural rate had reached as

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[30] See CRS Report RL30765, *Causes of Unemployment: A Cross Country Comparison*, by Marc Labonte.

low as 3.9% in 2000, but many assumed that 3.9% was not too far from the natural rate since there was no significant upward pressure on inflation at that time. In hindsight, if the natural rate has been higher than suspected in recent years, say 6.0% versus 5.0%, then the prolonged increase in the unemployment rate could partly be attributable to the long-term adjustment back toward the natural rate from an unsustainably low level. In this case, one would expect the unemployment rate to fall once the recovery becomes more robust, but it will fall less than expected. Those who argue that the natural rate was underestimated in the late 1990s point to the fact that the natural rate averaged 6%-6.5% in the 1970s and 1980s. To put that figure in perspective, consider that the recent peak unemployment rate would have been considered to be full employment, only attainable near the peak of the business cycle, 20 years ago.

Since the natural rate is a long-run concept, it is too soon to determine which portion, if any, of the recent increase in the unemployment rate is supply-side driven, and which portion is demand-driven. But the inflation rate is one piece of evidence to determine whether inadequate demand or a change in the natural rate is currently driving the rise in unemployment. If the economy is suffering from insufficient demand, the inflation rate should be falling; if the unemployment rate is being driven by changes in the labor market, inflation should be unaffected. The core inflation rate, which strips out volatile food and energy prices, fell from 2.6% in 2001 to 2.4% in 2002 to 1.4% in 2003. This indicates that insufficient demand is likely at least part of the story behind the rise in the unemployment rate.

Structural Reallocation

Declines in aggregate employment are often blamed on restructuring, or the "structural" (i.e., permanent) reallocation of resources from some industries to others.[31] For example, the decline in employment since 2001 is often attributed to the collapse of the "dot-com" industry. The argument is made that resources were overinvested in the dot-com industry in the late 1990s. When this situation was reversed, workers in that industry were no longer needed, causing overall employment to decline. Similarly, the large decline in manufacturing employment in recent years may have ongoing structural rather than cyclical causes.

This argument conflates gross job loss, which is the total number of jobs eliminated in a period, and net job loss, which is gross job loss less gross job gains. The reallocation of resources in the economy is the primary reason that gross job loss occurs. Changes in tastes, technology, and comparative advantage continually cause labor and capital to be shifted from one industry to another in a market economy. Sizeable reallocations of labor across industries has been a constant in the United States, as shown in Figure 1. But in most years, the economy has not had any problem offsetting gross job loss with a greater number of gross job gains. Thus, economic restructuring typically is not accompanied by net job loss overall, even though it may result in net job loss at the local or industry level.

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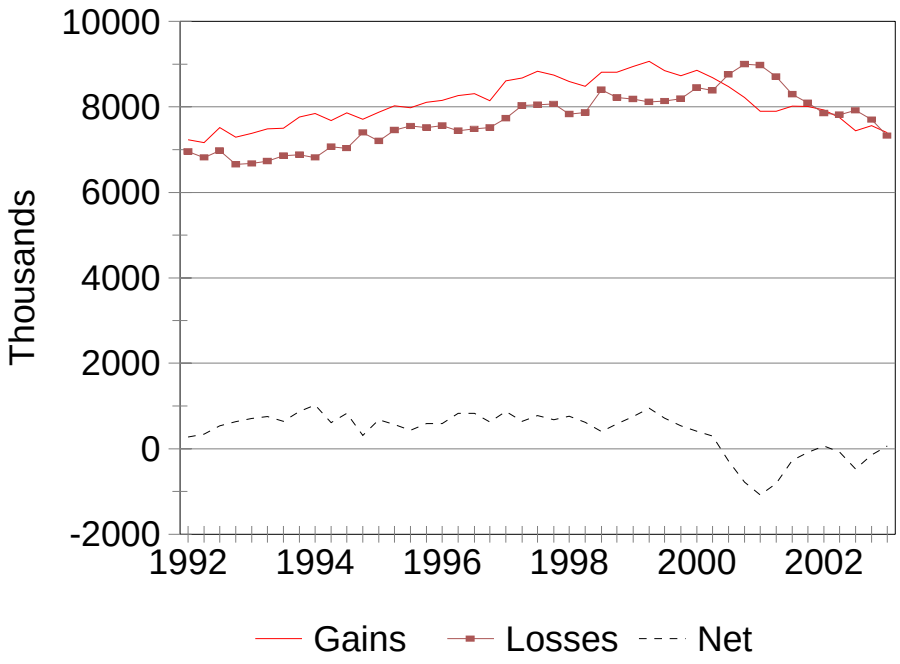
[31] An early example in this line of research is David Lillen, "Sectoral Shifts and Cyclical Unemployment," *Journal of Political Economy*, vol. 90, no. 4, Aug. 1982.

Figure 1: Gross and Net Job Loss and Gains, 1992:3-2003:3



Source: BLS

It is possible that if restructuring were unusually large at any given time, perhaps like the dot-com collapse, the economy could be unable to absorb that many workers in new jobs fast enough to prevent net job loss. Unfortunately, there is no way to systematically identify which restructuring events are large enough and separate their effects on net job loss from other economic phenomena occurring simultaneously. What recently appeared to be significant structural reallocation could simply be the result of the cyclical decline in aggregate spending since some industries are systematically more affected by recessions than others. In the absence of the decline in aggregate spending, it is possible that the dot-com collapse would not have had any effect on aggregate employment. Looking at Figure 1, the data seem to refute the argument that heightened restructuring caused the jobless recovery — gross job flows were lower from 2001 on than they had been in the late 1990s.

A recent New York Fed article attempts to determine how much of the jobless recovery is caused by shifts in structural rather than cyclical employment.[32] The authors conclude that structural shifts were a major cause of the jobless recovery, and were larger than the structural shifts that occurred in the past three decades. They look at two measures to reach this conclusion. First, they find that fewer layoffs were

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[32] Erica Groshen and Simon Potter, "Has Structural Change Contributed to a Jobless Recovery?", *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, vol. 9, no. 8, Aug. 2003. Daniel Aaronson, Ellen Rissman, and Daniel Sullivan ("Can Sectoral Reallocation Explain the Jobless Recovery?" *Economic Perspectives*, Federal Reserve Bank of Chicago, second quarter, 2004) show that the results are sensitive to the dates used.

temporary in the 2001 recession compared to past recessions. They argue that if the layoffs were caused by cyclical factors, the layoffs would not be permanent. (The distinction between temporary and permanent layoff is self-reported by workers at the time of the layoff. It is not determined by looking after the fact to see if a worker was actually re-hired.) Second, looking at employment at the industry level, they find that 79% of industries experienced structural employment change in the current business cycle, compared to closer to 50% in other business cycles. However, their findings are problematic due to their definition of structural change. If the change in employment is in the same direction (whether it rises or falls) in both recession and recovery, it is classified as structural change. If not, it is classified as cyclical change. By this definition, it is a foregone conclusion that the authors would find structural change dominating the current period since aggregate employment moved in the same direction in both periods. These results confirm that the aggregate pattern is replicated at the industry level, but do not explain why that pattern occurred. If all industries had been affected equally in the jobless recovery, by their definition, 100% of the jobless recovery would be caused by structural change. This is the opposite of what most economists have in mind by structural change, which is persistent changes in employment that affect some industries but not others. The New York Fed article does not shed light on structural change by that definition.

A recent Chicago Fed article studies the role of structural change in the jobless recovery using the more common concept.[33] It splits employment change at the industry level into cyclical and structural components. It finds that structural employment reallocation typically rises during recessions, as it did in the 2001 recession. But the increase in structural change during the 2001 recession is smaller than during any other recession of the past four decades. After the recession ended, structural change declined. These findings cast doubt on the theory that structural change is responsible for the jobless recovery

[33] Ellen Rissman, "Can Sectoral Labor Reallocation Explain the Jobless Recovery?", *Chicago Fed Letter*, Federal Reserve Bank of Chicago, no. 197, Dec. 2003.