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THE WEAK JOBS RECOVERY: WHATEVER HAPPENED TO “THE GREAT AMERICAN JOBS MACHINE”?

1. INTRODUCTION

During the 1990s, the U.S. labor market drew plaudits around the world for the large number of jobs it created. The rate of unemployment fell to levels below those of most other advanced economies and the percentage of the population in employment rose to its highest level in history, as even the less-skilled and former “welfare mothers” found jobs. At the same time, productivity grew smartly, real wages rose after decades of stagnation or decline, the seemingly inexorable rise of inequality ended, and poverty fell. Europe marveled at “the great American jobs machine” and sought solutions to its problems by looking at U.S. policies and practices.

What a difference a few years make.

More than three years have passed since the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) declared that the U.S. economy had begun its recovery. Yet compared with the past five recoveries, 3.1 million fewer people are working today than at the outset of the recovery.¹ Although by historical standards, the percentage of the employed population is high, it remains 2 percentage points lower than it did in spring 2000—the boom’s peak. The weak jobs recovery since 2001 has created greater economic problems for Americans than Europe’s sluggish job performance in the 1990s created for Europeans. The United

States has only a limited safety net for workers. Those who lose their jobs risk losing health care or seeing their family drop from the middle class into poverty.

This paper examines the operation of the U.S. labor market in the 2001 recovery. Because the United States is in the middle of the recovery, ours is a real-time analysis; thus, some conclusions could change if the recovery stalls or employment grows suddenly. For instance, since August 2003, nonfarm payroll employment increased by 2.5 million, for a monthly average of 146,000, while the household survey showed a comparable increase of 2.6 million.² However, seventeen months of job growth that barely kept pace with civilian population growth does not gainsay the surprising U.S. inability to generate jobs for so long in this recovery. It would take employment growth of some 300,000 per month over the next year and a half to bring the employment-population rate to the 64.4 level it held during 2000.

2. THE CHALLENGE OF THE JOBLESS RECOVERY

“How come we see recovery every place but in the labor market?” (adapted from Robert Solow).

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Our first and most important finding is that the current recovery has been the worst in recent U.S. economic history in terms of job creation. Employment growth has been much slower than it has been in all post–World War II recoveries—including the 1990s recovery, when employment also took an extraordinarily long time to rebound (Chart 1).³ Typically, employment growth lags business cycle recoveries by three to four months. In the 1990s recovery, the lag was a little more than two years. In the current recovery, the lag is three to four years and, at the time of our writing, the labor market has not yet clearly recovered.

During the 2004 presidential campaign, it was natural that the Democrats stressed the lack of job growth while the incumbent Republicans downplayed the issue, directing attention at the relatively moderate rate of unemployment. However, as stated by Kevin Hassett, Director of Economic Policy Studies at the American Enterprise Institute for Public Policy Research: “It’s not a partisan issue, it is a fact. The labor market is worse than in the typical recovery.”⁴ The poor recovery in the labor market goes beyond sluggish job growth. While the rate of unemployment has been moderate, the duration of joblessness has been high three years into the recovery, and an exceptional proportion of persons not participating in the labor market want to work (Schreft, Singh, and Hodgson 2004). In addition, as these authors emphasize, a large share of jobs created in the recovery were temporary. Almost 30 percent of new jobs created from November 2001 to

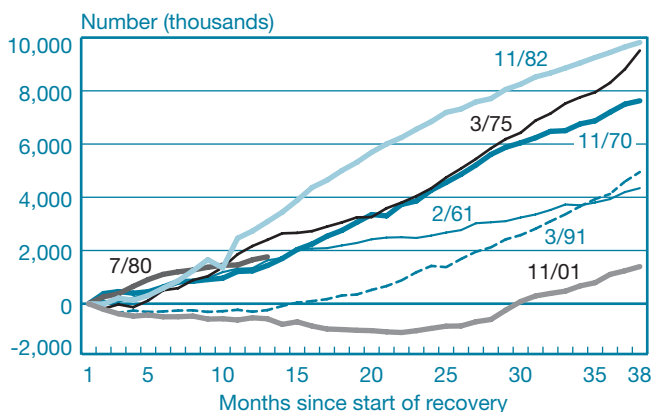
December 2004 were in the temporary-help services sector. During the 1990s recovery, only 10 percent of new jobs were in temporary-help services.⁵

Our second finding is that the slow growth of employment is not due to the strikingly weak job performance of a particular sector, such as the dot-com sector in the aftermath of its boom-bust cycle. To be sure, there was an asset-price-bubble component to the 1990s boom that can help explain job problems in some of the “new economy” sectors.⁶ However, we find that employment at the end of 2004 was markedly below employment at the start of the recovery in many private sector industries, not simply in those affected by the dot-com boom. In December 2004, employment was 9 percent lower in durable manufacturing and 9 percent lower in nondurable manufacturing than it was when the recovery began (Chart 2). Employment showed no growth in the retail, wholesale, and transportation sectors. It grew modestly in education and health services, government, financial activities, and some other services. However, employment fell in many other service sectors, including the broad “information” industries (such as telecoms, newspapers, movies, and cable TV)—a major part of the new economy that is supposed to be producing good jobs to replace declining employment in traditional manufacturing.

Offering further evidence of the breadth of the weak labor market in the boom, our third finding is that employment growth was down among groups especially sensitive to business cycle swings, but unlikely to be affected by the dot-com bubble narrowly defined: African-Americans, new labor market entrants, out-of-school youth, and less-educated workers.⁷ Historically, recessions take their toll first on these groups, but in recoveries they benefit from larger increases in employment than more advantaged groups. Table 1 shows that in the 2001 recovery, African-Americans, out-of-school youth, and new labor market entrants had worse employment experiences relative to those of other workers than they did in the two previous recoveries, with the 2001 recovery showing greater employment declines.⁸ New entrants with no more than a high-school degree have borne the largest brunt of the weak recovery: the employment-population ratios of black and white men fell 5.1 and 3.0 percentage points, respectively, while the estimated drops for black and white women were 4.3 and 2.3 percentage points, respectively.

Over the same period, the labor market for highly educated and skilled workers did not tighten, as it did in typical recoveries. Table 1 illustrates this pattern for new-entrant male and female black college graduates: although not measured with a high level of precision, their respective employment-population ratios fell 1.5 and 2.0 percentage points. It is safe to conclude that their prospects have not improved during the recovery. At the same time, some white-collar workers who

CHART 1
Cumulative Employment Growth during
the Seven Most Recent Recoveries

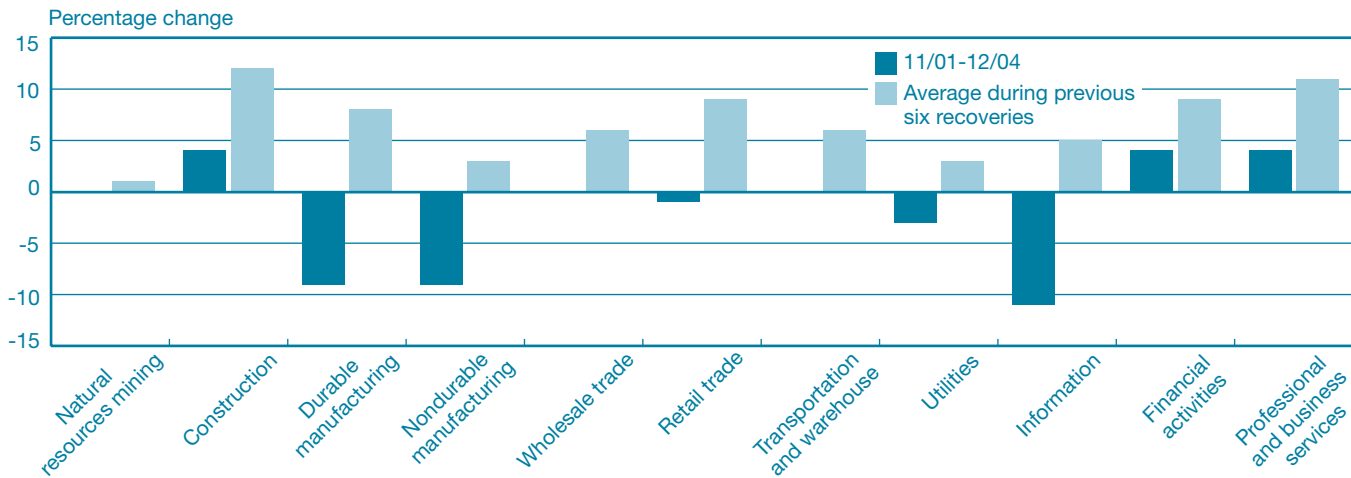


Source: U.S. Department of Labor, Bureau of Labor Statistics, nonfarm payroll establishment data (<<http://www.bls.gov>>).

Note: Each series is benchmarked to the start of its recovery as defined by the National Bureau of Economic Research’s Business Cycle Dating Committee.

CHART 2

Employment Growth at Similar Points in Recovery



Source: U.S. Department of Labor, Bureau of Labor Statistics, nonfarm payroll establishment data (<<http://www.bls.gov>>).

Note: Each series is benchmarked to the start of its recovery as defined by the National Bureau of Economic Research's Business Cycle Dating Committee.

normally have low unemployment even in recessions have had more trouble finding jobs than they did in virtually any other recovery. The rate of unemployment among electrical engineers, for example, has exceeded the national unemployment rate, while joblessness is also found among various workers in computer programming. Here, possibly, are the footprints of the dot-com experience, though it is more likely that the problems in these job markets will be more long term because of outsourcing of computer-related work to India and other developing countries.

Our fourth finding is that the jobless recovery has no particular geographic dimension. Analyzing employment growth by state, we find that compared with the current recovery, the typical state's employment grew 2.6 to 4.8 percent faster in the 1990s recovery and 4.5 to 6.3 percent faster in the 1980s recovery. Current employment growth is substantially weaker across the board, with two distinct patterns emerging (see appendix). Employment growth in states that have experienced any increase in jobs during the current recovery has been slower than it has been in past recoveries. Arizona and Florida exemplify this pattern: employment growth in these states was slightly more than 1 percent between 2001 and 2003. During comparable periods in earlier recoveries, growth was two to four times higher. Elsewhere, in contrast with the 1980s and 1990s recoveries, there has been a contraction in employment. Michigan and Ohio fit this pattern: during the

current recovery, employment in these states fell 1 to 4 percent, compared with modest increases in earlier recoveries.

3. WAGES, INEQUALITY, AND POVERTY

In the 1980s recovery and in the early part of the 1990s recovery, slow productivity growth and loose labor markets led to slow growth of earnings relative to inflation. This trend ended after 1995, when productivity growth began to accelerate and labor markets tightened. For the first time in two or more decades, real wages rose even for those at the bottom of the earnings or skill distribution. In the 2001 recovery, productivity has performed well while wages have shown a disparate pattern of change. Table 2 shows that from 2001 to 2004, men's earnings stagnated while women's earnings grew modestly. Looking across a variety of earnings series, we note that some series show modest gains while others do not, making it hard to pin down what has happened to wages and inequality in the weak jobs recovery. Published earnings data from the Current Population Survey suggest that the median weekly earnings of full-time employees barely kept pace with inflation in 2004 while the real earnings of the groups most vulnerable to a weak labor market fell in the recovery. The median earnings of all workers fell 0.5 percent while the real

TABLE 1

Changes in Employment-Population Ratios for Vulnerable Groups, from End of Recession
through Third Year of Recovery
Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
All												
Black	0.039 (0.005)	-0.007 (0.006)	-0.034 (0.006)	0.028 (0.005)	-0.019 (0.005)	-0.013 (0.005)	0.035 (0.005)	0.008 (0.005)	-0.022 (0.005)	0.028 (0.005)	0.001 (0.005)	-0.003 (0.005)
White	0.017 (0.002)	-0.002 (0.002)	-0.017 (0.002)	0.009 (0.001)	-0.003 (0.002)	0.006 (0.002)	0.026 (0.002)	0.012 (0.002)	-0.005 (0.002)	0.022 (0.002)	0.010 (0.002)	0.015 (0.002)
Black-white	0.022 (0.006)	-0.006 (0.006)	-0.018 (0.006)	0.019 (0.005)	-0.016 (0.005)	-0.019 (0.005)	0.009 (0.005)	-0.004 (0.005)	-0.017 (0.006)	0.006 (0.005)	-0.009 (0.005)	-0.018 (0.005)
Out-of-school youth												
Black	0.066 (0.014)	-0.054 (0.017)	-0.039 (0.020)	0.050 (0.013)	-0.065 (0.017)	-0.020 (0.020)	0.023 (0.014)	0.001 (0.018)	-0.025 (0.021)	0.014 (0.014)	-0.003 (0.017)	0.008 (0.021)
White	0.039 (0.005)	-0.014 (0.007)	-0.032 (0.007)	0.013 (0.005)	-0.022 (0.007)	-0.013 (0.008)	-0.008 (0.006)	-0.016 (0.008)	-0.021 (0.009)	-0.018 (0.005)	-0.023 (0.008)	0.017 (0.010)
Black-white	0.027 (0.015)	-0.040 (0.019)	-0.007 (0.021)	0.037 (0.014)	-0.043 (0.018)	-0.007 (0.020)	0.031 (0.015)	0.017 (0.019)	-0.004 (0.023)	0.032 (0.015)	0.020 (0.019)	-0.009 (0.022)
New entrants												
Black	0.077 (0.009)	-0.002 (0.010)	-0.051 (0.010)	0.066 (0.008)	-0.017 (0.009)	-0.027 (0.007)	0.053 (0.008)	0.019 (0.009)	-0.043 (0.010)	0.040 (0.008)	0.007 (0.009)	-0.017 (0.007)
White	0.039 (0.003)	0.001 (0.003)	-0.030 (0.004)	0.035 (0.009)	-0.007 (0.016)	-0.004 (0.016)	0.042 (0.003)	0.009 (0.004)	-0.023 (0.004)	0.033 (0.009)	0.000 (0.016)	0.007 (0.016)
Black-white	0.038 (0.009)	-0.003 (0.010)	-0.021 (0.011)	0.032 (0.008)	-0.010 (0.009)	-0.023 (0.010)	0.011 (0.009)	0.010 (0.010)	-0.020 (0.011)	0.007 (0.008)	0.007 (0.009)	-0.024 (0.010)
New-entrant high-school dropouts												
Black	0.055 (0.016)	0.001 (0.019)	-0.055 (0.020)	0.058 (0.015)	0.003 (0.019)	-0.019 (0.015)	0.023 (0.015)	0.044 (0.018)	-0.033 (0.020)	0.014 (0.015)	0.035 (0.019)	0.006 (0.015)
White	0.027 (0.007)	-0.019 (0.008)	-0.054 (0.008)	0.030 (0.017)	-0.012 (0.032)	-0.013 (0.032)	0.026 (0.007)	0.002 (0.008)	-0.049 (0.008)	0.024 (0.017)	-0.005 (0.032)	0.012 (0.032)
Black-white	0.028 (0.017)	0.019 (0.020)	-0.001 (0.021)	0.029 (0.016)	0.015 (0.019)	-0.006 (0.020)	-0.003 (0.016)	0.042 (0.019)	0.017 (0.021)	-0.010 (0.016)	0.040 (0.019)	-0.007 (0.021)

TABLE 1 (CONTINUED)

Changes in Employment-Population Ratios for Vulnerable Groups, from End of Recession
through Third Year of Recovery
Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
New-entrant high-school graduates												
Black	0.058 (0.014)	-0.064 (0.015)	-0.039 (0.017)	0.055 (0.013)	-0.061 (0.016)	-0.004 (0.013)	0.055 (0.014)	-0.040 (0.015)	-0.018 (0.017)	0.051 (0.013)	-0.036 (0.017)	0.015 (0.014)
White	0.056 (0.005)	-0.006 (0.006)	-0.036 (0.006)	0.048 (0.015)	0.000 (0.027)	0.002 (0.027)	0.036 (0.005)	-0.021 (0.007)	-0.024 (0.007)	0.035 (0.015)	-0.019 (0.029)	0.013 (0.029)
Black-white	0.002 (0.014)	-0.059 (0.017)	-0.002 (0.018)	0.006 (0.014)	-0.061 (0.016)	-0.006 (0.017)	0.019 (0.014)	-0.019 (0.017)	0.006 (0.019)	0.016 (0.014)	-0.018 (0.017)	0.002 (0.019)
New-entrant college graduates												
Black	0.070 (0.020)	-0.027 (0.022)	-0.015 (0.020)	0.070 (0.020)	-0.037 (0.020)	0.003 (0.014)	0.042 (0.021)	0.026 (0.022)	-0.020 (0.020)	0.046 (0.021)	0.021 (0.021)	-0.002 (0.015)
White	0.006 (0.004)	0.003 (0.005)	-0.011 (0.005)	0.008 (0.021)	-0.007 (0.036)	0.005 (0.031)	0.035 (0.006)	0.015 (0.006)	0.000 (0.006)	0.036 (0.022)	0.011 (0.038)	0.018 (0.032)
Black-white	0.064 (0.021)	-0.030 (0.022)	-0.003 (0.020)	0.063 (0.020)	-0.031 (0.021)	-0.002 (0.020)	0.006 (0.022)	0.011 (0.022)	-0.020 (0.020)	0.010 (0.022)	0.009 (0.022)	-0.019 (0.020)

Source: Authors' calculations, from assorted years of Current Population Survey's ORG files.

Notes: "All" denotes individuals sixteen and over. "Out-of-school youth" denotes individuals with no more than a high-school degree, sixteen to twenty-four years of age, and not enrolled in school. The columns labeled "Unadjusted" are constructed from regressions that pool the years 1982, 1985, 1991, 1994, 2001, and 2004, where the variables are white dummy variable, year dummy variables, and the interactions between the white dummy variable and the year dummy variables. The columns labeled "Adjusted" are constructed from the same specification, but controls for years of school, potential experience, and census division of residence are included.

TABLE 2

Changes in Log Hourly Earnings for Vulnerable Groups, from End of Recession through Third Year of Recovery Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
All												
Black	-0.064 (0.011)	0.004 (0.010)	-0.010 (0.010)	-0.067 (0.009)	-0.025 (0.009)	-0.129 (0.009)	0.004 (0.009)	0.018 (0.009)	0.016 (0.008)	-0.016 (0.008)	-0.008 (0.007)	-0.135 (0.008)
White	-0.028 (0.003)	-0.003 (0.003)	-0.009 (0.003)	-0.048 (0.003)	-0.036 (0.003)	-0.116 (0.004)	0.001 (0.003)	0.023 (0.003)	0.021 (0.003)	-0.019 (0.003)	0.005 (0.003)	-0.127 (0.004)
Black-white	-0.037 (0.011)	0.007 (0.011)	-0.001 (0.011)	-0.020 (0.009)	0.011 (0.009)	-0.013 (0.009)	0.003 (0.010)	-0.005 (0.009)	-0.005 (0.009)	0.003 (0.009)	-0.013 (0.008)	-0.008 (0.008)
Out-of-school youth												
Black	-0.084 (0.019)	-0.030 (0.023)	0.015 (0.024)	-0.104 (0.017)	-0.035 (0.020)	-0.082 (0.022)	-0.034 (0.019)	-0.038 (0.022)	-0.048 (0.022)	-0.068 (0.018)	-0.023 (0.021)	-0.191 (0.021)
White	0.000 (0.006)	-0.032 (0.007)	-0.015 (0.007)	-0.061 (0.005)	-0.031 (0.007)	-0.093 (0.008)	0.004 (0.006)	-0.029 (0.008)	-0.024 (0.008)	-0.048 (0.006)	-0.030 (0.007)	-0.139 (0.009)
Black-white	-0.084 (0.020)	0.002 (0.024)	0.030 (0.026)	-0.042 (0.018)	-0.004 (0.021)	0.011 (0.023)	-0.038 (0.020)	-0.009 (0.024)	-0.024 (0.024)	-0.020 (0.019)	0.007 (0.022)	-0.052 (0.022)
New entrants												
Black	-0.108 (0.016)	-0.022 (0.016)	0.002 (0.017)	-0.103 (0.013)	-0.026 (0.013)	-0.127 (0.011)	-0.040 (0.015)	-0.023 (0.015)	-0.037 (0.015)	-0.043 (0.012)	-0.012 (0.012)	-0.186 (0.010)
White	-0.054 (0.005)	-0.022 (0.005)	-0.025 (0.005)	-0.066 (0.014)	-0.029 (0.023)	-0.128 (0.023)	-0.024 (0.005)	-0.008 (0.005)	-0.009 (0.005)	-0.040 (0.013)	-0.010 (0.021)	-0.152 (0.020)
Black-white	-0.054 (0.016)	0.000 (0.017)	0.027 (0.018)	-0.037 (0.013)	0.003 (0.014)	0.001 (0.015)	-0.017 (0.016)	-0.015 (0.016)	-0.028 (0.016)	-0.004 (0.013)	-0.002 (0.013)	-0.034 (0.013)
New-entrant high-school dropouts												
Black	-0.135 (0.024)	-0.070 (0.028)	0.005 (0.029)	-0.104 (0.020)	-0.037 (0.023)	-0.072 (0.019)	-0.096 (0.027)	-0.068 (0.028)	-0.022 (0.028)	-0.103 (0.025)	-0.050 (0.026)	-0.173 (0.021)
White	-0.070 (0.007)	-0.050 (0.008)	-0.015 (0.008)	-0.074 (0.022)	-0.026 (0.040)	-0.083 (0.041)	-0.052 (0.008)	-0.042 (0.009)	-0.043 (0.009)	-0.054 (0.027)	-0.021 (0.046)	-0.160 (0.044)
Black-white	-0.065 (0.025)	-0.019 (0.029)	0.021 (0.030)	-0.029 (0.021)	-0.011 (0.024)	0.011 (0.025)	-0.044 (0.028)	-0.026 (0.030)	0.020 (0.029)	-0.049 (0.026)	-0.029 (0.028)	-0.013 (0.028)

TABLE 2 (CONTINUED)

Changes in Log Hourly Earnings for Vulnerable Groups, from End of Recession through Third Year of Recovery
Percentage Points

	Men						Women					
	Unadjusted			Adjusted for Education, Potential Experience, and Region			Unadjusted			Adjusted for Education, Potential Experience, and Region		
	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01	1985-82	1994-91	2004-01
New-entrant high-school graduates												
Black	-0.114 (0.020)	-0.030 (0.022)	-0.002 (0.023)	-0.119 (0.018)	-0.023 (0.020)	-0.133 (0.016)	-0.063 (0.018)	-0.020 (0.019)	-0.044 (0.019)	-0.056 (0.017)	-0.013 (0.018)	-0.183 (0.014)
White	-0.062 (0.006)	-0.037 (0.007)	-0.027 (0.008)	-0.078 (0.019)	-0.031 (0.034)	-0.119 (0.034)	-0.045 (0.006)	-0.021 (0.007)	-0.024 (0.008)	-0.053 (0.017)	-0.020 (0.032)	-0.149 (0.030)
Black-white	-0.052 (0.021)	0.007 (0.023)	0.025 (0.024)	-0.041 (0.019)	0.009 (0.021)	-0.015 (0.022)	-0.018 (0.019)	0.001 (0.020)	-0.019 (0.021)	-0.003 (0.018)	0.007 (0.019)	-0.034 (0.019)
New-entrant college graduates												
Black	-0.054 (0.071)	-0.048 (0.067)	-0.058 (0.059)	-0.051 (0.066)	-0.037 (0.056)	-0.151 (0.042)	0.128 (0.056)	-0.014 (0.050)	-0.074 (0.044)	0.107 (0.052)	0.023 (0.043)	-0.184 (0.032)
White	0.019 (0.018)	0.021 (0.018)	-0.061 (0.017)	0.003 (0.068)	0.021 (0.103)	-0.168 (0.089)	0.028 (0.016)	0.001 (0.015)	-0.002 (0.014)	0.019 (0.052)	0.012 (0.078)	-0.117 (0.067)
Black-white	-0.073 (0.073)	-0.068 (0.070)	0.003 (0.061)	-0.054 (0.068)	-0.058 (0.065)	0.016 (0.057)	0.099 (0.058)	-0.015 (0.052)	-0.072 (0.046)	0.087 (0.054)	0.011 (0.049)	-0.067 (0.043)

Source: Authors' calculations, from assorted years of Current Population Survey's ORG files.

Notes: "All" denotes individuals sixteen and over. "Out-of-school youth" denotes individuals with no more than a high-school degree, sixteen to twenty-four years of age, and not enrolled in school. The columns labeled "Unadjusted" are constructed from regressions that pool the years 1982, 1985, 1991, 1994, 2001, and 2004, where the variables are white dummy variable, year dummy variables, and the interactions between the white dummy variable and the year dummy variables. The columns labeled "Adjusted" are constructed from the same specification, but controls for years of school, potential experience, and census division of residence are included.

earnings of high-school dropouts and graduates declined 2.2 and 0.8 percent, respectively. Earnings of workers at the bottom of the distribution also dropped through 2004:3. Between 2003:3 and 2004:3, real earnings for the bottom 10 percent of the wage distribution declined 1.7 percent.

Slow pay rises, however, are not the fundamental problem of the weak jobs recovery. The problem is sluggish employment growth. The combination of stagnant employment and sluggish real wage growth has meant that poverty rose through 2003, albeit modestly. This pattern contrasts with the usual pattern of poverty falling as GDP grows. Moreover, several key labor market statistics correlated with poverty show no improvement at the time of our writing. The employment of Americans who are high-school dropouts or African-Americans has not improved since the U.S. Census Bureau collected the poverty data. Specifically, from December 2003 to December 2004, the percentage of high-school dropouts and African-Americans in employment remained at 36 and 56 percent, respectively.⁹ If the recovery does eventually reduce poverty, it is unlikely to be by much.

4. EXPLAINING THE WEAK JOBS RECOVERY

Why did the great American jobs machine run out of steam in the 2001 recovery?

One possibility is that the NBER incorrectly dated the end of the recession. While there is a range of uncertainty around the dating of a recovery, the current recovery looks reasonably normal outside of the labor market. Corporate profits have risen. The cumulative growth in profits during the eighth and eleventh quarters of the current recovery exceeds the average during the previous five recoveries. Real GDP has grown at a more rapid pace than it did during the 1990s, particularly since the eighth quarter of the recovery. But this cumulative growth is well below the average during the previous five recoveries. Industrial production has also grown, albeit at much slower rates than during past recoveries, yet growth is still a healthy 5 percent-plus. The slower growth of industrial production partially reflects the continuing shift toward a service economy.

Is it possible that the weak jobs recovery reflects increased rigidity in the U.S. labor market, consistent with the orthodox explanation of weak employment growth in Europe in the 1990s? Clearly not. Neither the current administration nor the Clinton administration enacted new regulations on unemployment insurance or welfare benefits that might adversely affect the level of employment.

Could the weak jobs recovery reflect conservative central bank policy of the type that the European Central Bank

adopted during the 1990s? Again, clearly not. Although the Federal Reserve has been raising interest rates over the past few months (and in our view, will likely continue to do so), it has kept rates quite low during the recovery.

So why has the jobs machine stalled?

4.1 Productivity Growth?

At the outset, we reject the seemingly attractive idea that increased productivity explains the weak jobs recovery. This is a circular argument. Increases in productivity due to technological and other innovations shift out the country's aggregate supply curve, which increases the growth of potential GDP and permits greater employment growth without inflation than would otherwise be the case. The puzzle is why increased productivity, coupled with record growth in fiscal stimulus and record low interest rates, has not generated sufficient GDP growth to crank up the great American jobs machine as quickly as it did in other recoveries.

Unlike productivity growth, some factors that may have contributed to the weak recovery are U.S. performance in the international economy and domestic and foreign investment in the United States, rising health care costs, the nature of the fiscal stimulus, and structural economic change. We now consider these factors.

4.2 U.S. Performance in the International Economy

In the current recovery, the trade deficit has risen to levels unprecedented in recent U.S. experience. The ratio of exports minus imports relative to GDP increased from -4.2 percent to -5.4 percent between 2001:4 and 2004:3 (Table 3). As a share of GDP, this is the largest trade deficit in U.S. economic history and it represents a larger than normal increase in trade deficits in a recovery, but it is not the largest increase on record. In the 1980s recovery, the trade deficit rose from -0.5 percent to -2.4 percent.

There has been much discussion about jobs being "off-shored" in the weak recovery. Government statistics do not provide even crude measures of the number of jobs off-shored in the service industries. For example, although Indian exporters report several billion dollars of exports in computer-related and telecoms services and many major U.S. companies proclaim off-shoring of service sector jobs as way to improve profits, government statistics record less than a billion dollars of service sector imports from India and show them declining

TABLE 3

Components of GDP in the 2001 Recovery and Earlier Recoveries,
Seasonally Adjusted at Annual Rates
Percent

	Start of Recovery					
	November 2001	March 1991	November 1982	March 1975	November 1970	February 1961
(X-M)/GDP						
First quarter of recovery	-4.2	-0.3	-0.5	0.0	-1.4	-0.2
Twelfth quarter of recovery	-5.4	-0.8	-2.4	-1.4	-1.1	-0.4
Change	-1.2	-0.6	-1.9	-1.4	0.3	-0.2
Exports/GDP						
First quarter of recovery	9.9	8.0	5.5	5.4	4.4	3.7
Twelfth quarter of recovery	10.4	8.7	5.3	4.9	4.8	3.7
Change	0.5	0.7	-0.2	-0.5	0.5	0.0
Imports/GDP						
First quarter of recovery	14.1	8.3	6.0	5.4	5.8	3.9
Twelfth quarter of recovery	15.7	9.6	7.7	6.3	5.9	4.1
Change	1.7	1.3	1.7	0.9	0.1	0.2
Government consumption expenditures and gross investment/GDP						
First quarter of recovery	18.3	22.0	22.5	24.1	26.9	29.6
Twelfth quarter of recovery	17.9	20.2	21.9	21.7	22.4	28.7
Change	-0.4	-1.8	-0.6	-2.4	-4.5	-0.9
Federal/GDP						
First quarter of recovery	6.2	9.5				
Twelfth quarter of recovery	6.7	8.0				
Change	0.5	-1.4				
National defense/GDP						
First quarter of recovery	4.0	6.9				
Twelfth quarter of recovery	4.5	5.5				
Change	0.5	-1.4				
Nondefense/GDP						
First quarter of recovery	2.2	2.5				
Twelfth quarter of recovery	2.2	2.5				
Change	-0.1	0.0				
State and local/GDP						
First quarter of recovery	12.1	12.5				
Twelfth quarter of recovery	11.2	12.1				
Change	-0.9	-0.4				

Source: Authors' calculations, from Bureau of Economic Analysis, Table 1.1.6.

over time. Estimates from business groups of the magnitude of off-shoring suggest that upwards of 300,000 to 400,000 jobs are off-shored per year,¹⁰ which would make off-shoring a substantial contributor to the jobless recovery. By contrast, Bureau of Labor Statistics surveys on job displacement record only a minuscule number of losses attributable to off-shoring, in part because the questions posed to displaced workers are not asked in such a way as to obtain the appropriate statistic. The U.S. Government Accounting Office, which recently examined the quality of official statistics, found the data to be virtually useless for measuring job losses.¹¹

What is well measured and unprecedented is the huge drop in foreign direct investment (FDI) in the United States as a share of GDP during the current recovery. In 2001, FDI was 1.6 percent of U.S. GDP; in 2003, it was 0.3 percent. In the two previous recoveries, foreign direct investment rose as a share of GDP, presumably directly creating jobs in the United States. But in this recovery, FDI fell, largely reflecting a decrease in Europe's direct investment in the United States.

However, simply ascribing some of the weak job growth to such international factors as trade, domestic and foreign direct investment, and off-shoring does not give a complete explanation. That the value of the dollar fell relative to the euro and the pound despite rapid increases in productivity demands some deeper explanation as to why the United States did not fare better in the international markets.

4.3 The Impact of Health Care Costs

Another factor behind the weak jobs recovery may be the U.S. mode of funding medical insurance. Health insurance spending per employee has risen sharply in the United States, albeit over a longer period than the current recovery. It adds a substantial marginal cost to employing workers, and many firms have sought ways to operate without committing to permanent workers who obtain such benefits.

The Kaiser Family Foundation finds that between 2000 and 2003, employment of people with employer-sponsored health care coverage fell 2.8 percent, a considerably greater drop than the overall fall in employment in that period. This finding is consistent with the notion that some of the stagnant employment growth may be associated with rising health care costs, and ultimately with the country's distinct mode of financing health insurance. Reber and Tyson (2004) also find support for rising health insurance costs as a deterrent to employment growth. Furthermore, Gould (2004) and others continue to document the decline in employer-provided health

coverage. The high cost of medical care may contribute to the tendency of firms to employ more temporary workers than full-time workers in the recovery.

4.4 Less Bang for the Fiscal Stimulus Buck?

A third possible factor is the nature of the fiscal stimulus, which gave the vast bulk of the tax cuts to wealthy people whose propensity to spend quickly is likely to be less than that of people in middle- and lower income groups. Between 2001 and 2004, the U.S. fiscal deficit rose 3.5 percentage points relative to potential GDP, from a surplus of 1.1 percent to a deficit of 2.4 percent (Table 4). This rise exceeds the increase in the deficit and the size of the stimulus in the 1990s, 1980s, and 1970s recoveries. Yet actual GDP grew just 8 percent between 2001 and 2003, despite the huge stimulus. This is a lower growth rate than the rate in the two previous recoveries, when the fiscal stimulus was weaker. We suspect that the larger stimulus had a smaller effect on GDP growth because the tax cuts were slanted to the extremely wealthy. Table 4 also shows that if current policies continue, the stimulus will rival the growth that occurred from 1982 to 1986. In addition, the table reports that the Congressional Budget Office's forecasted budget deficit as a share of potential GDP for 2005 is predicted to fall slightly, to 2.6 percent.

Furthermore, several forms of government spending that might be expected to have a more direct effect on employment fell relative to GDP: federal government consumption expenditures and gross investment, and state and local spending. Table 3 shows that as a share of GDP, expenditures and investment have fallen 0.4 percent from the first quarter of the recovery to 2004:3. The cumulative change in the fiscal stimulus tells the same story. State and local expenditures also decreased as a share of GDP, from 12.1 to 11.2 percent. This 0.9 percent drop exceeds the 0.4 percent decline during the 1990s recovery.

The increase in government spending that added to the fiscal deficit came by way of greater federal expenditures on national defense, which may have less of an impact on the labor market than do other forms of spending. As a share of GDP, expenditures on national defense increased from 4.0 to 4.5 percent during the current recovery, compared with a decline from 6.9 to 5.5 percent during the 1990s recovery. The combination of spending to finance the war on terror, which probably has a smaller job multiplier than other forms of public investment, and the drop in state and local expenditures arguably weakened fiscal policy's effect on job creation.

TABLE 4

Fiscal Stimulus as a Percentage of Potential GDP Was Larger in the Weak Jobs Recovery Than in the Two Preceding Recoveries Standardized Budget Deficit or Surplus as a Share of Potential GDP

Recovery	Surplus or Deficit (-)
2001	1.1
2002	-1.1
2003	-2.7
2004	-2.4
2005	-2.6
2003-01	-3.8
2004-01	-3.5
2005-01	-3.7
1991	-2.5
1992	-2.9
1993	-2.9
1994	-2.1
1995	-2.0
1993-91	-0.4
1994-91	0.4
1995-91	0.5
1982	-1.1
1983	-3.0
1984	-3.6
1985	-4.3
1986	-4.8
1984-82	-2.5
1985-82	-3.2
1986-82	-3.7
1975	0.2
1976	-2.0
1977	-1.1
1978	-1.5
1979	-0.7
1977-75	-1.3
1978-75	-1.7
1979-75	-0.9
1970	0.2
1971	-0.9
1972	-1.7
1973	-1.6
1974	0.1
1972-70	-1.9
1973-70	-1.8
1974-70	-0.1

Note: The forecast for 2005 is from Congressional Budget Office, "Table 1: Measures of the Federal Budget Surplus or Deficit, 2000 to 2005, the Cyclically Adjusted and Standardized Budget Measures: Updated Estimates, September 2004, Section 2 of 3."

Analysts have proposed two other reasons for the weak jobs recovery. Although the data supporting the reasons seem ambiguous, we briefly discuss them.

4.5 Structural Change?

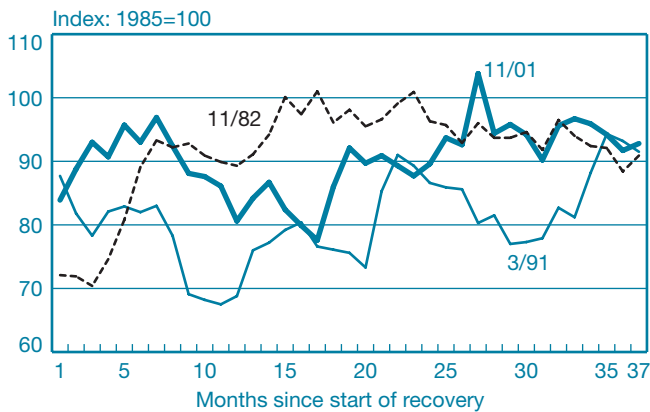
Groschen and Potter (2003) argue that the permanent relocation of workers from declining industries to growing ones has contributed to the jobless recovery. Their measure of structural change is the proportion of workers in industries that experience similar changes in recessions and booms. They find that by this definition, the share of total employment in industries undergoing structural change was 51 percent during the mid-1970s and 1980s recoveries and 57 percent during the 1990s recovery; it is 79 percent during the current recovery, arguably a reaction to the booming 1990s. Groschen, Potter, and Sela (2004) note further, though, that this division depends on the dating of the recovery. When employment turning points are used, the recession is deeper, longer, and more balanced between structural and cyclical flows. However, using a different measure—a cyclically adjusted variant of the Lillien measure of structural change (the variance of net employment growth by industry weighted by each industry's average share of employment)—Aaronson, Rissman, and Sullivan (2004a, 2004b) find no evidence that structural change has contributed to the jobless recovery.

4.6 Greater Uncertainty?

The growth of temporary employment in the 2001 recovery could reflect increased uncertainty about the post-9/11 economic future. To evaluate this hypothesis, we compare the path of the University of Michigan's consumer sentiment index in the current recovery with its path in the two previous recoveries (Chart 3). The chart shows that the level of consumer sentiment remains in the range of the two earlier recoveries. The current path does not look very different from that of the past, suggesting that greater uncertainty cannot explain employers' growing use of temporary workers.

To explore the possibility that the consumer sentiment index is not accurately capturing the uncertainty, we compare the Michigan index with the Conference Board's consumer confidence index, another widely watched measure. The consumer confidence index does show more variability, but

CHART 3
Consumer Sentiment by Recovery

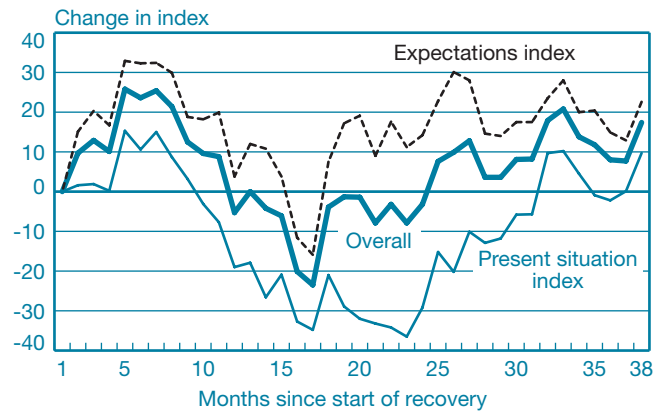


Source: Authors' calculations, from University of Michigan's consumer sentiment index.

both indexes tell a similar story about views of the economy. We attribute the greater variation to each survey's sampling framework. The consumer sentiment index retains a portion of its sample from month to month, while the consumer confidence index is based on a new random sample each month, making month-to-month comparisons problematic.¹²

We also plot the components of the consumer confidence index: the present situation index and the expectations index (Chart 4). Throughout the recovery, the two indexes have moved together, with both indicating cumulative gains. The expectations index, which is probably a better measure of economic and geopolitical uncertainty, has shown cumulative gains since the nineteenth month. If firms are unwilling to expand employment because of greater consumer uncertainty, these data do not confirm the expected patterns.

CHART 4
Cumulative Change in Consumer Confidence by Components during the 2001 Recovery



Source: Authors' calculations, from Conference Board's consumer confidence index.

5. THE CHALLENGE TO ANALYSTS AND POLICYMAKERS

The U.S. jobless recovery challenges analysts to determine whether the weak jobs recovery represents a major shift in the link between the labor market and the economy over the business cycle—a new business cycle reality—or whether it merely represents an idiosyncratic break in historic patterns, possibly due to the peculiarities of the 1990s boom. Our analysis favors the first theory, that something fundamental underlies the jobless recovery. However, only a more complete accounting of the factors causing the recovery can resolve this issue.

The jobless recovery also poses a challenge to economic policy. As long as the United States makes full employment its main “welfare state” protection for workers, the country has to attain something akin to the late 1990s tightness in the labor market for economic growth to be shared among the entire population. Nothing short of that high rate of employment and low level of unemployment seems powerful enough to improve the employment and earnings opportunities for vulnerable groups. This challenge makes the jobless recovery particularly important to the nation's economic well-being and brand of capitalism.

APPENDIX

Comparison of Growth in State Total Nonfarm Employment by Recovery Percent

State	End Year: First Six Months of 2004						State	End Year: First Six Months of 2004					
	Benchmark: Start of Recovery			Benchmark: End of Recession				Benchmark: Start of Recovery			Benchmark: End of Recession		
	2002-04	1992-94	1983-85	2001-04	1991-94	1982-85		2002-04	1992-94	1983-85	2001-04	1991-94	1982-85
AL	-0.3	5.0	7.4	-1.7	7.1	8.7	SC	1.3	5.2	9.0	0.3	6.2	11.5
AK	1.8	4.9	7.6	3.8	6.8	15.1	SD	0.7	7.6	6.0	0.3	12.0	8.4
CA	0.0	0.0	8.6	-1.0	-1.6	9.8	TX	-0.1	6.6	7.6	-1.1	8.0	6.4
CO	-1.7	9.9	6.9	-3.6	13.6	7.8	UT	0.9	11.8	10.1	0.2	15.4	11.3
CT	-1.6	1.1	7.9	-2.6	-0.7	9.1	VT	0.2	5.1	8.9	-0.7	6.0	10.7
DE	0.3	4.3	10.2	-0.9	4.1	13.1	VA	2.0	5.4	11.2	1.3	6.2	14.4
DC	0.6	-2.2	5.4	2.2	-2.7	5.2	VI	-3.6	-1.0	1.4	-6.3	1.4	1.1
GA	0.2	9.3	12.7	-1.7	11.2	16.7	WY	1.4	5.4	2.2	2.4	6.8	-4.9
HI	3.5	-1.2	4.8	3.8	-0.6	6.6	AZ	2.9	11.5	18.6	2.9	13.5	24.2
ID	1.8	10.7	5.7	1.9	15.8	7.6	AR	0.0	7.4	7.5	-0.7	10.4	10.7
IL	-1.7	4.4	5.0	-3.5	4.4	3.5	FL	3.1	8.2	12.9	3.2	9.5	17.2
IN	0.1	6.2	6.9	-1.0	8.2	6.9	IA	0.2	5.4	3.2	-1.1	6.6	3.1
KS	-1.5	4.6	5.0	-2.4	6.4	5.0	LA	0.6	5.8	1.7	-0.4	6.8	-1.0
KY	-0.1	5.9	8.5	-1.0	8.3	7.7	ME	-0.3	3.8	7.8	-0.6	3.5	10.3
MD	1.0	3.1	9.5	1.3	2.2	12.7	MI	-2.4	5.6	10.5	-4.1	6.6	11.5
MA	-2.9	3.9	8.7	-5.2	2.9	10.9	MO	0.2	5.9	8.1	-1.0	7.0	9.0
MN	0.2	5.7	8.6	-0.8	8.1	9.3	NV	6.5	15.6	10.8	6.6	17.4	11.3
MS	-0.2	9.9	5.8	-0.8	12.6	6.1	NH	0.1	7.4	13.8	-1.3	8.5	18.2
MT	1.5	7.5	1.1	2.6	12.0	1.9	NM	2.4	9.3	8.5	3.6	12.3	9.9
NE	-0.4	6.1	6.5	-1.2	7.7	6.7	HI	-1.5	4.7	6.8	-3.2	5.3	6.0
NJ	0.7	2.7	7.9	0.3	1.5	10.4	OR	0.2	7.5	6.6	-1.1	9.5	7.2
NY	-0.5	1.3	6.0	-2.0	-0.7	6.8	PA	-0.8	2.3	4.6	-1.5	2.1	3.3
NC	-0.4	7.5	9.6	-1.9	9.3	13.0	TN	0.6	7.9	8.7	-0.3	11.0	9.7
ND	0.9	6.4	0.5	0.9	8.9	0.9	WA	1.2	3.7	7.8	-0.4	5.8	9.0
OK	-2.2	4.7	-0.5	-3.5	5.7	-4.2	WV	-1.4	5.4	2.6	-1.8	7.2	-1.7
PR	1.9	4.7	7.3	1.0	7.2	7.9	WI	0.6	5.6	6.2	-0.5	8.2	6.2
RI	1.3	2.2	8.3	1.5	3.0	9.9							

ENDNOTES

1. Authors' tabulations, based on the Current Population Survey's household survey (<<http://www.bls.gov>>). From November 2001 to December 2004, the number employed increased by 3.9 million individuals. The average increase after thirty-eight months during the previous five recoveries was 7.0 million. In percentage terms, employment in the household survey grew 2.9 percent and 8.0 percent during the previous recoveries.
2. For a discussion of differences in changes in employment between the establishment and household surveys, see <http://www.bls.gov/cps/ces_cps_trends.pdf>.
3. The published monthly employment figures are from the establishment-level Current Employment Statistics (<<http://www.bls.gov>>). The monthly time series used in the analysis spans February 1961 to December 2004, covering five boom, bust, and recovery episodes. We use the NBER Business Cycle Dating Committee's designations to identify the episodes. The periods of expansion, recession, and recovery that are the length of the current recovery are as follows: March 1991-March 2001, March 2001-November 2001, and November 2001-November 2004; November 1982-July 1990, July 1990-March 1991, and March 1991-March 1994; March 1975-January 1980, January 1980-July 1980, and July 1980-July 1984; November 1970-November 1973, November 1973-March 1975, and March 1975-March 1978; and February 1961-December 1969 and December 1969-November 1970 (the thirty-sixth month after November 1970 is in the middle of the November 1973-March 1975 recession).
4. John Leland, "For Unemployed, Wait for New Work Grows Longer," *New York Times*, January 9, 2005.
5. Authors' tabulations, based on Current Employment Statistics. Figures for temporary-help services are only available starting with the 1990s recovery.
6. Examining the hypothesis that an excessive boom in the new economy underlies the recession, Federal Reserve Vice Chairman Roger Ferguson concludes, "detecting asset-price overvaluations and undervaluations is controversial in hindsight and arguably impossible in real time" (Ferguson 2005). He further concludes that asset-price-bust recessions, such as the March 2001-November 2001 period, are not necessarily any longer, deeper, and associated with a larger drop in output and investment than previous recessions.
7. Rodgers and Freeman (2005) go into greater depth documenting the fragility of the gains that these groups made during the 1990s.
8. The micro data used in this analysis are from the annual Merged Outgoing Rotation Group Files of the Current Population Survey (1979-2003). We use the data files and extraction software produced by Unicon Research Corporation. These files allow us to describe the experiences of specific demographic groups, such as new entrants. However, this gain in heterogeneity comes with costs. The files start in 1979. Furthermore, because of the annual nature of the data, we must approximate the recoveries, which are 1982-84, 1991-93, and 2001-03. Our samples are made up of all men and women at least sixteen years of age, new entrants (zero to ten years of potential experience), and nonenrolled individuals ages sixteen to twenty-four. Potential experience is defined as: age – years of schooling – 5. In years where educational attainment is measured by degree, years of schooling is approximated by using Jaeger's (2003) imputation approach. Our nonenrolled youth sample is based on individuals who respond "no" to being enrolled in school (school enrollment question). The employment-population ratio is the ratio of the number of employed to the sum of the number looking for work, the number working, the number with a job but not working, and all those who are out of the labor force. The ratio is constructed from the MLR (Monthly Labor Force Recode) variable in the Unicon Research Corporation CPS Utilities files. In these files, the variable has been made consistent across time to reflect changes in the question. The natural logarithm of real hourly earnings is constructed from the respondent's pay status. If the respondent reported that he or she is paid on an hourly basis, we took the logarithm of their hourly wage. If the respondent reported that he or she is paid on a weekly basis, we took the logarithm of the ratio of their usual weekly earnings and usual hours worked per week. We deflated nominal hourly wages using the CPI-UX-1 deflator. It is important to note that these two labor market outcomes correspond to the respondent's labor market activity during the last week and hourly wages at his or her current job.
9. Authors' weighted tabulations, based on the U.S. Census Bureau's Data FERRET.
10. John C. McCarthy, "3.3 Million U.S. Services Jobs to Go Offshore," Forrester Research Brief, November 11, 2002 (<<http://www.forrester.com/ER/Research/Excerpt/0,1317,15900,00.html>>) and "Offshoring: Where Have All the Jobs Gone?" Goldman Sachs Global Economic Research Report no. 03/38, September 2003.

ENDNOTES (CONTINUED)

11. "Current Government Data Provide Limited Insight into Offshoring of Services," U.S. Government Accounting Office, September 2004 (<<http://www.gao.gov/new.items/d04932.pdf>>).

12. The consumer confidence index is developed from a monthly survey of 5,000 households (<<http://biz.yahoo.com/c/terms/conf.html>>). The consumer sentiment index is constructed from the monthly Survey of Consumers. This survey is an ongoing, nationally

representative survey based on approximately 500 telephone interviews with adult men and women living in households in the coterminous United States (forty-eight states plus the District of Columbia). Each month, an independent cross-section sample of households is drawn. The respondents chosen in this drawing are reinterviewed six months later, creating a rotating panel. The total monthly sample is typically 60 percent new respondents and 40 percent reinterviewees (<<http://www.sca.isr.umich.edu/>>).

REFERENCES

- Aaronson, D., E. R. Rissman, and D. G. Sullivan. 2004a. "Assessing the Jobless Recovery." Federal Reserve Bank of Chicago *ECONOMIC PERSPECTIVES* 28, no. 2 (second quarter): 2-21.
- . 2004b. "Further Evidence on Sectoral Reallocation and the Jobless Recovery." Unpublished paper, December.
- Ferguson Jr., R. W. 2005. "Recessions and Recoveries Associated with Asset-Price Movements: What Do We Know?" Remarks delivered at the Stanford Institute for Economic Policy Research, Stanford, California, January 12.
- Freeman, R. B. 2000. "The U.S. Economic Model at Y2K: Lodestar for Advanced Capitalism?" NBER Working Paper no. 7757, June.
- . 2004. "Are European Labour Markets as Awful as All That?" Centre for Economic Performance Discussion Paper no. 644, August.
- Gould, E. 2004. "The Chronic Problem of Declining Health Coverage: Employer-Provided Health Insurance Falls for Third Consecutive Year." EPI ISSUE BRIEF. Washington, D.C.: Economic Policy Institute.
- Groshen, E., and S. Potter. 2003. "Has Structural Change Contributed to a Jobless Recovery?" Federal Reserve of New York *CURRENT ISSUES IN ECONOMICS AND FINANCE* 9, no. 8 (August).
- Groshen, E., S. Potter, and R. P. Sela. 2004. "Was the 2001 Recession Different in the Labor Market? Comparing Measures." Unpublished paper, December 28.
- Jaeger, D. A. 2003. "Estimating the Returns to Education Using the Newest Current Population Survey Education Questions." *ECONOMICS LETTERS* 78, no. 3 (March): 385-94.
- Reber, S., and L. Tyson. 2004. "Rising Health Insurance Costs Slow Job Growth and Reduce Wages and Job Quality." Unpublished paper, University of California at Los Angeles and London Business School.
- Rodgers III, W. M., and R. B. Freeman. 2005. "The Fragility of the 1990s Economic Gains." Unpublished paper, Rutgers University and Harvard University.
- Schreft, S., A. Singh, and A. Hodgson. 2004. "Jobless Recoveries: A Longer Term Perspective." Unpublished paper, December 14.
- U.S. Government Accounting Office. 2004. "International Trade: Current Government Data Provide Limited Insight into Offshoring of Services." GAO-04-932, September 22.

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