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## **The Quality of New Jobs From the 1990s Through June 2004**

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## Summary

The course of interest in labor market issues thus far in the current decade is much like the path followed through the mid-1990s. The focus was on people's job prospects for at least a year after the 1990-1991 and 2001 recessions ended as the unemployment rate kept rising and employment kept falling. Once the labor market rebounded, attention switched to the kind of jobs being created: were the new jobs good (high paying) or bad (low paying)?

Data are not available on wages paid specifically for newly created jobs. The quality of job creation was initially approached by examining the industries *or* occupations in which employment had grown after dividing them into low paying and high paying groups. Studies that took an industry approach found most new jobs added during the 1990s were low wage, while those that took an occupation approach found most new jobs added were high wage. A limitation of the approaches is the level of aggregation: although the service-producing sector has been characterized as low paying, for example, it actually is comprised of industries that pay comparatively well *and* comparatively poorly; similarly, industries are staffed by workers in many different occupations offering a wide range of earnings. Absent both industry and occupation detail, it cannot be determined whether the jobs being created are relatively high paid (e.g., physicians), relatively low paid (e.g., nursing aides), or across-the-board within an industry (e.g., hospitals). To capture these outcomes, the U.S. Bureau of Labor Statistics developed a matrix of occupation-industry job categories (e.g., managers in manufacturing) which were then divided into high, middle, and low earnings employment groups. Based on this approach, new job growth occurred at opposite ends of the pay spectrum during the 1990s, but the rate of job creation was greater in the highest compared to the lowest wage group.

The application of this approach to more recent data is problematic because there are large occupation-industry categories, which account for a large share of net job growth since 2000, lying near the earnings boundaries that separate lower from higher paying jobs. Nevertheless, following this approach, Factcheck.org found that employment rose in high paying jobs and fell in low paying jobs while *BusinessWeek* found that employment rose in low paying jobs but rose almost twice as much in high paying jobs. A problem with these studies is that a job that pays slightly more than the median wage is treated the same as a job that pays significantly more. One study that avoided this problem estimated that the wage in expanding industries was 13% lower than in contracting industries as a share of employment. Most analyses of the new job quality issue looked at industry data only, and a few, at occupation data only. As mentioned above, these categories are too broad to give very meaningful results.

Attempts to answer the new job quality question with one "overall" result may oversimplify. A look at the fastest growing and declining occupation/industry categories reveals that there is job growth and decline across the earnings spectrum. In any case, new job quality affects only a small subset of the labor market and may not offer much illumination on broader labor market issues, such as compensation growth, unemployment, and earnings inequality. This report will not be updated.

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# The Quality of New Jobs From the 1990s Through June 2004

For the past few years, the U.S. labor market has performed in what many consider to be an atypical manner. The longest economic expansion of the post-World War II period ended in 2001 with a comparatively short, shallow recession. According to data of the U.S. Bureau of Labor Statistics (BLS), the unemployment rate rose from a 30-year low in April 2000 of 3.8% to a high of 5.6% in November 2001, the final month of the March-November recession. In the recession year of 2001, employers let go more than 2 million workers in some 21,500 mass layoffs, and on a net basis, nonfarm payroll jobs fell by 1.6 million or 1.2%. While the economy then proceeded to pick up steam, the labor market did not: the unemployment rate continued to climb to a post-recession high of 6.3% in June 2003, and the net number of jobs and of people employed continued to fall until summer 2003. This pattern rarely occurred following prior recessions.<sup>1</sup>

Now that the labor market has shown signs of sustained revival, concern has shifted to questions about the quality of the new jobs being created. That is, some assert that more of the net employment growth in recent times has been at the lower end than at the higher end of the pay spectrum while others have made the opposite claim.<sup>2</sup> Just as offshore outsourcing was advanced as a contributing factor to the sluggishness of the labor market rebound immediately after the 2001 recession, it also has been offered as perhaps the leading reason for the allegedly low wage composition of much of the job growth over the past year.<sup>3</sup>

This report looks into the recent nature of net job growth by earnings level. It begins by examining the quality of new jobs created during the 1990s and explains why there are difficulties with applying to recent data a useful methodology developed during the prior decade. The report then analyzes the empirical studies that have been conducted to determine the quality of employment growth to date

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<sup>1</sup> CRS Report RL32047, *The “Jobless Recovery” From the 2001 Recession: A Comparison to Earlier Recoveries and Possible Explanations*, by Marc Labonte and Linda Levine. (Hereafter cited as CRS Report RL32047, *The “Jobless Recovery” From the 2001 Recession*.)

<sup>2</sup> Edmund L. Andrews, “Growth Seems Tilted Toward Low-Wage Jobs,” *The New York Times*, Aug. 10, 2004; and David Nicklaus, “Recent Job Growth Is Real — Believe It or Not,” *St. Louis Post-Dispatch*, July 23, 2004.

<sup>3</sup> Jonathan Weisman and Nell Henderson, “Quality of New Jobs is Focus of Election-Year Debate,” *The Washington Post*, June 23, 2004. For information on offshoring see CRS Report RL32292, *Offshoring (a.k.a. Offshore Outsourcing) and Job Insecurity Among U.S. Workers*, by Linda Levine; and CRS Report RL30799, *Unemployment Through Layoffs: What Are the Underlying Reasons?*, by Linda Levine.

since the 2001 recession. It concludes with a consideration of the merits of the good jobs/bad jobs debate.

## The Quality of Job Growth During the 1990s

The course of interest in labor market issues thus far in the current decade is much like the path followed through the mid-1990s. People remained focused on their job prospects even after the July 1990-March 1991 recession ended as the unemployment rate did not show steady improvement in the ensuing 16 months.<sup>4</sup> The net decline in employment that continued for about a year after the recession's end caused the period to be labeled a "jobless recovery." Once the labor market began to rebound, attention switched to the kind of jobs being created. Specifically, were the new jobs good (high paying) or bad (low paying), with the latter often dubbed "hamburger flipper" jobs in the popular press during the 1992 presidential election.<sup>5</sup> The job quality issue continued to garner interest through the 1996 presidential election,<sup>6</sup> but then largely dropped from sight during the latter years of the nation's longest postwar economic expansion (March 1991-March 2001).

Job quality has many dimensions, among them wages, benefits, and working conditions. The only one of these variables for which comprehensive data exists over a long period of time is wages and salaries.

### Industry and Occupation Studies

Statistics are not collected on wages paid specifically for newly created jobs. Labor market observers initially approached the new job quality issue by examining the industries *or* occupations in which employment had grown after dividing them into low paying and high paying groups relative to an earnings standard (e.g., average or median earnings). Those who took an industry approach utilized the Current Employment Statistics (CES) survey, which queries 160,000 nonfarm businesses and government agencies about employment and earnings of wage and salary workers in production and nonsupervisory jobs.<sup>7</sup> Those who took an occupational approach utilized the Current Population Survey (CPS), which queries 60,000 households in the civilian noninstitutional population about various labor force variables including the number of employed persons and their earnings. Although the CES is regarded

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<sup>4</sup> CRS Report RL32047, *The "Jobless Recovery" From the 2001 Recession*.

<sup>5</sup> Jim Hoagland, "It's Jobs, Remember?," *The Washington Post*, May 13, 1993.

<sup>6</sup> In chronological order see for example Beth Belton, "Tale of Two Surveys: Job Quality Debated," *USA Today*, Aug. 8, 1994; George Koretz, "A Trend Toward Quality Jobs?," *Business Week*, Oct. 9, 1995; Jonathan Peterson and Stuart Silverstein, "Quality of Most New Jobs Better Than Expected," *Los Angeles Times*, Mar. 13, 1996; and "Low-Wage Employment Has Fallen, Report Says," *The Wall Street Journal*, Apr. 24, 1996.

<sup>7</sup> As the CES is limited to payroll jobs, it does not include the self-employed or unpaid family workers. The Current Population Survey captures all classes of worker. For more information see CRS Report RL32387, *Self-Employment as a Contributor to Job Growth and as An Alternative Work Arrangement*, by Linda Levine.

as yielding more reliable data in part due to its larger sample size, it does not provide data by occupation as does the CPS.<sup>8</sup>

**Results by Industry.** The U.S. economy has long been characterized by changes in its industrial structure. The first sector to experience a long-term decline in employment was agriculture. People left or never entered farming in part due to plentiful job opportunities that emerged after World War II in manufacturing industries that were shifting from defense to consumer production (e.g., refrigerators, washing machines, and televisions). The number of jobs in the goods-producing sector peaked in 1979, however: overall employment in manufacturing industries took a downward turn in the 1980s following the same path taken by mining industries some two decades earlier. The service-producing sector (e.g., wholesale and retail trade; and finance, insurance, and real estate) has for some time been the primary generator of jobs, fueled partly by increased consumer demand for a variety of labor-intensive activities (e.g., the provision of health care and of food away from home).

While the composition of employment has changed to reflect the reconfigured industrial structure of the economy, relative wages by industry have remained largely the same. For example, the average wages paid by retailers and leisure/hospitality enterprises (e.g., clothing stores and hotels/motels) are below those paid by construction companies and manufacturers (e.g., commercial builders and semiconductor producers), which are below the wages paid by professional services concerns (e.g., lawyers offices and management consultancies). “So changes in the distribution of employment across industries yield some information about the growth in good jobs.”<sup>9</sup>

Of the 20 million payroll jobs created in the 1993-1999 period, the services industry group (e.g., education and health services) accounted for one of every two net new jobs.<sup>10</sup> Retail trade, another industry within the service-producing sector, accounted for an additional 17% of job growth. (See **Table 1**) On average, these two fast growing industries pay the lowest wages. From this perspective, then, most of the net job growth during the period occurred in “bad” jobs.

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<sup>8</sup> The Occupational Employment Statistics (OES) program also provides employment and wage estimates by occupation and industry, but earnings data were not available before 1996.

<sup>9</sup> Alan B. Krueger, “How to Define a Good Job,” *The New York Times*, Aug. 19, 2004, p. C2.

<sup>10</sup> Council of Economic Advisers (CEA) and U.S. Department of Labor (DOL), *20 Million Jobs: January 1993-November 1999*, Dec. 3, 1999. (Hereafter cited as CEA and DOL, *20 Million Jobs*.)

**Table 1. Job Growth and Earnings by Industry (1993-1999)**

Industry	Share of Total Net Job Growth (%)	Average Weekly Earnings of Production and Nonsupervisory Workers in 1999 (\$)
<i>Goods-producing sector, excluding agriculture</i>		
Mining	-1	737
Construction	9	672
Manufacturing	1	579
<i>Service-producing sector</i>		
Transportation and public utilities	5	607
Wholesale trade	5	559
Retail trade	17	264
Finance, insurance, and real estate	5	529
Services	50	436
Government	8	—

**Source:** Employment data from Council of Economic Advisers and U.S. Department of Labor, *20 Million Jobs: January 1993 - November 1999*; and U.S. Bureau of Labor Statistics, *Employment and Earnings*, Jan. 2003.

**Note:** Based on the 1987 Standard Industrial Classification system. Earnings data not available from the CES for the government industry group.

**Results by Occupation.** Just as there have been employment shifts across industries, so too have there been shifts across occupations. The widening wage gap between less and more educated workers in the last few decades indicates that employers have increased their relative demand for persons in occupations typified by high educational requirements (e.g., a bachelor's degree).<sup>11</sup> Although employment in these occupations generally has expanded more rapidly than in occupations with lesser educational requirements, the occupational composition of total employment has remained largely unchanged.<sup>12</sup> As with employment by industry and despite the increased earnings premium paid to occupations employing comparatively highly educated persons (which occurred to the greatest extent during the 1980s), the occupational wage hierarchy has remained much the same (e.g., accountants and registered nurses typically earn more than electricians and truck mechanics who earn more than office clerks and retail salespersons who typically earn more than child care providers and food preparation workers).

<sup>11</sup> CRS Report 95-1081, *Education Matters: Earnings by Highest Year of Schooling Completed*, by Linda Levine.

<sup>12</sup> CRS Report 97-764, *The Skill (Education) Distribution of Jobs: How Is It Changing?*, by Linda Levine.

Of the 20 million payroll jobs created in the 1993-1999 period, managers and professionals each accounted for more than 30% of employment growth. (See **Table 2**) The two occupational groups also made up “almost 70 percent of all college graduates in the workforce.”<sup>13</sup> These fast growing occupations typically pay the highest wages. From this perspective, then, most of the net job gain during the period occurred in “good” jobs.

**Table 2. Job Growth and Earnings by Occupation (1993-1999)**

Industry	Share of Total Net Job Growth (%)	Median Weekly Earnings of Full-time Wage and Salary Workers in 1999 (\$)
Managerial	32.5	792
Professional	31	800
Technicians	1	618
Sales	13	523
Clerical	-2.5	447
Crafts	9	594
Operator/Laborer	6	429
Service	11	336

**Source:** Employment data from Council of Economic Advisers and U.S. Department of Labor, *20 Million Jobs: January 1993 - November 1999*; U.S. Bureau of Labor Statistics, *Employment and Earnings*, Jan. 2000.

**Note:** Based on the 1980 Standard Occupational Classification system.

## Occupation-Industry Studies

A limitation of the industry and occupation approaches concerns the level of aggregation. Although the service-producing sector is often characterized as low paying, for example, it actually is comprised of industry groups that pay comparatively well (e.g., financial activities) and comparatively poorly (e.g., retail trade). Similarly, industries are staffed by workers in numerous occupations that afford a wide range of earnings. Absent occupational detail, it cannot be determined whether employment is being created in relatively high paid jobs (e.g., physicians), relatively low paid jobs (e.g., nursing aides), or across-the-board within an industry (e.g., hospitals).

**Results.** To capture all these possible outcomes, BLS developed a matrix of occupation-industry job categories (e.g., managers in wholesale trade). The job categories were then ranked in descending order based upon median weekly earnings

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<sup>13</sup> CEA and DOL, *20 Million Jobs*.



and divided into three approximately equal size employment groups corresponding to high, middle, and low earnings.

“As the U.S. economy moved out of the recession of the early 1990s and employment expanded, job growth in the highest earnings group accelerated” and was greater than that of the two lower earnings groups over the 1989-1999 period at 27%.<sup>14</sup> Almost all managerial and professional occupations were in the highest paying cluster of jobs, and these highly paid managers and professionals accounted for a disproportionate share of the cluster’s net job growth. The services industry increased its employment of managers and professionals to such an extent that the two occupations in the industry made up two-thirds of the net employment gain recorded in the highest paying group of jobs.

Employment grew minimally (1%) in the middle earnings cluster. Some notable employment change did occur in occupation-industry job categories within the group, however. Blue-collar positions in construction and in transportation/public utilities greatly expanded, but the opposite was true for blue-collar factory jobs. Clerical staff at manufacturers fell substantially as well. In contrast, the ranks of managers in retail establishments grew considerably as did technicians in the services industry.

Employment in the lowest paid cluster increased by 16%, or at two-fifths the rate of the highest paid group (27%).

Employment of the lowest earnings group was relatively unaffected by the recession of the early 1990s. Indeed, through 1993, the rate of employment growth among low-wage workers actually exceeded that for workers at the upper end of the earnings spectrum. However, by the mid-1990s, job growth in the high earnings group had outpaced growth in the lowest earnings group.<sup>15</sup>

The lowest earnings cluster was mostly comprised of blue-collar, sales, service, and clerical workers in the retail trade and services industries. The fastest growing of these occupation-industry categories, which accounted for two-thirds of the low paid group’s employment gain, were sales and service workers in retail trade and services industries. Job opportunities for low paid clerical workers varied by industry, with substantial employment gains in the services industry but cutbacks at retailers.

When employment growth during the 1990s was analyzed simultaneously by occupation and industry, then, both ends of the pay spectrum recorded the most new jobs; however, the rate of job creation was much greater in the highest compared to the lowest wage group.

**Application of This Approach to More Recent Data.** Unfortunately, the occupation-industry matrix approach cannot be successfully applied to more recent

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<sup>14</sup> Randy E. Ilg and Steven E. Haugen, “Earnings and Employment Trends in the 1990s,” *Monthly Labor Review*, Mar. 2000, p. 22. (Hereafter cited as Ilg and Haugen, *Earnings and Employment Trends in the 1990s*.)

<sup>15</sup> *Ibid.*, p. 27.

data because there are large job categories lying near the earnings boundaries that separate lower from higher paying jobs. Compounding the analytical problem is that these same job categories have accounted for a substantial share of net employment growth since 2000. Some illustrations might clarify the matter.<sup>16</sup>

- Employment in the occupation-industry categories cannot be divided into approximately equal thirds to correspond to low, medium, and high paying jobs because the median earnings of professionals in the education and health services industry lie at the bottom of the high paying group. But, placement in the highest paid group of the entire large (13.7 million) occupation-industry category — which accounted for 1.6 million of the 1.4 million net increase in persons employed between 2000 and a 12-month moving average ending in June 2004 — would greatly influence the results.
- The sensitivity of the results to large occupation-industry categories that lie near earnings boundaries is not obviated by switching from thirds to halves. If occupation-industry categories are divided in half based upon those above and below the median earnings in 2003 of \$541, to correspond to low paying and high paying jobs, then there is a problem with analysis of the construction and extractive occupations in the construction industry. The median earnings of the occupation-industry category, which accounted for 850,000 of the 2000-June 2004 employment increase, were \$553 in 2003. If the entire large (6.3 million) occupation-industry category were placed among the high paying jobs, it would greatly affect the results and cause half of base period employment to no longer lie below (above) the earnings boundary.

BLS had been able in its occupation-industry analyses covering the 1990s to produce robust results, that is, outcomes were similar when employment was ranked in various base periods of employment. The problem of large occupation-industry categories falling near earnings boundaries and those same categories accounting for much of total job growth were not factors then as they are today.

## A Review of Recent Studies on New Job Quality

Like the analyses of data from the 1990s, studies have looked at recent changes in employment by occupation, industry, and by combining occupations and industries. **Table 3** presents selected recent studies which are reviewed below according to the type of data on which they were based.

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<sup>16</sup> This information was provided by BLS in telephone conversations with CRS in Aug. and Sept. 2004.

**Table 3. Data Used by Recent Studies**

Author of Study	Dates Covered	Occupation Data Only	Industry Data Only	Occupation and Industry Data
Joint Economic Committee	6/03-6/04	x		
Chicago Fed	12/03-6/04		x	
CIBC World Markets	10/01-5/04		x	
Wachovia	5/03-5/04		x	
Morgan Stanley	6/03-6/04; 2/04-6/04	x	x	
Factcheck.org	6/03/6/04			x
<i>BusinessWeek</i>	6/03-6/04			x
Employment Policy Foundation	5/03-5/04			x
Economic Policy Institute	3/03-5/04; 6/03-6/04		x	x

## Industry Studies

Most recent studies have only classified jobs by industry and utilized data from the CES (establishment) survey. Net employment increased by 1.4 million between June 2003 and June 2004. As shown in **Table 4**, the increase was concentrated in construction and the following service-producing sector industry groups: professional and business services, education and health services, leisure and hospitality, and retail trade. Employment in these five industries increased by 1.4 million in that period. Only two industry groups, manufacturing and information, experienced net job losses in that time. Viewed from the beginning of the last recession, the picture is a little different. Six industry groups experienced an increase in employment since March 2001: construction; and in the service-producing sector, financial activities, education and health services, leisure and hospitality, other services, and government. The job gains from March 2001 to June 2004 in education and health services were about two and a half times larger than the next largest industry. Among the other seven industry groups that saw a net job loss over that period, manufacturing by far recorded the biggest decrease;<sup>17</sup> information was a distant second. The fact that six out of 14 industry groups experienced a change in employment over the past year that was in the opposite direction of the change since the beginning of the recession points to a problem inherent in these studies — the results will be sensitive to the dates used.

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<sup>17</sup> For more information on manufacturing employment, see CRS Report RL32350, *Deindustrialization: The Roles of Trade, Productivity, and Recession*, by Craig Elwell.

**Table 4. Change in Employment by Industry**

Industry	Change in Employment (thousands of workers)	
	June 2003-June 2004	March 2001-June 2004
<i>Goods-producing sector</i>		
Natural Resources and Mining	16	-21
Construction	194	48
Manufacturing	-119	-2,536
<i>Service-producing sector</i>		
Wholesale Trade	30	-183
Retail Trade	148	-297
Transportation	54	-218
Utilities	5	-18
Information	-19	-543
Financial Activities	48	238
Professional and Business Services	484	-313
Education and Health Services	315	1,426
Leisure and Hospitality	244	344
Other Services	20	219
Public Administration	-38	586

**Source:** Created by CRS from BLS data from the CES based on the 2002 North American Industry Classification system.

**Note:** Employment peaked in Mar. 2001. Not all studies use the industry groupings shown in this table.

Using data classified by the 14 industry groups in **Table 4**, a Chicago Federal Reserve study found that from December 2003 to June 2004,

Those sectors paying above the national average (wage) constitute just under three-fourths of total employment growth (including five of the seven fastest growing industries), despite representing only 65% of total employment.<sup>18</sup>

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<sup>18</sup> Daniel Aaronson and Sara Christopher, "Employment Growth in Higher-Paying Sectors," *Chicago Fed Letter 206*, Sept. 2004, p. 2. (Hereafter cited as Aaronson and Christopher, (continued...))

Thus, high paying industry groups accounted for most job growth both on an absolute basis and as a share of employment. However, different results were obtained when the data were disaggregated into 84 industries: "... above-average wage sectors added 41% of recent employment gains, while constituting 51% of total employment."<sup>19</sup> The researchers found that much of the difference was because job growth within the professional and business services group occurred in industries with below average wages. They found that over the past four business cycles, the quality of new jobs has been highly cyclical, with new job quality deteriorating in recessions.

Wachovia compared job growth in the 10 industries with above average earnings to job growth in the four industries with below average earnings. It found that employment in the high wage industries increased by 1.1 million while employment in the low wage industries increased by 0.3 million from May 2003 to May 2004. From these results, one could conclude that most job growth occurred in high wage industries, but since low wage industries accounted for only about 30% of total employment, it would be better to compare growth rates of the two to determine if industries with above average wages grew more rapidly than in industries with below average wages. By this measure, Wachovia reported that high wage jobs expanded by 1.2% and low wage jobs expanded by 0.8% in the past year. This was not the case in the recession or early stages of the recovery, however, when employment in below average wage industries fell more slowly than in above average wage industries.<sup>20</sup>

Morgan Stanley characterized the jobs created from February to June 2004 as low quality. It estimated that 25% of employment growth occurred in three industries "at the low end of the job hierarchy" — restaurants, temporary help, and building services. Another 19% of job gains occurred in nine other low paying industries (i.e, clothing stores, couriers, hotels, grocery stores, trucking, hospitals, social work, business support, and personal and laundry services). Thus, Morgan Stanley estimated that 44% of job creation over a four-month period in 2004 was in low quality jobs. Alternatively, 29% of employment growth occurred in industries that Morgan Stanley categorized as high wage — construction (17%) and the following services industries (12%): legal, architecture and engineering, computer systems design, consulting, credit intermediation, brokerage and securities firms, and private education.<sup>21</sup>

CIBC World Markets concluded that from October 2001 to May 2004, employment in low paying industries increased by about 1.5% and employment in

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<sup>18</sup> (...continued)  
*Employment Growth in Higher-Paying Sectors.*)

<sup>19</sup> Ibid., p. 2.

<sup>20</sup> Wachovia, *Stop Whining About the 'Quality' of Jobs*, Economics Group newsletter, June 4, 2004.

<sup>21</sup> Stephen Roach, "America's Job-Quality Trap," *Morgan Stanley Global Economic Forum*, July 9, 2004. (Hereafter cited as Roach, *America's Job-Quality Trap*.) Note: The study also analyzed the occupational data from the CPS. That part of the study will be reviewed in the next section.

high paying industries decreased by about 2.5% (high and low paying was not defined). CIBC World Markets also found that industries gaining jobs had average earnings 30% lower than industries losing jobs. It went on to note that in 2004 the rate of job creation in high paying industries accelerated (e.g., natural resources, construction, and professional services), which CIBC ascribed to “normal cyclical behavior.”<sup>22</sup>

One shortcoming of all of these studies is that they do not draw any distinction among jobs within the high wage and low wage groups. For example, the studies do not make any distinction between employment growth concentrated in jobs that paid far above the average wage and growth concentrated in jobs that paid only one dollar more than the average wage.

The Economic Policy Institute (EPI) utilized a unique methodology that attempts to avoid this problem. It assigned each industry a weighted share, so that industries with greater contractions or expansions weigh more heavily in the overall results. Based on the weighted shares, EPI calculated a composite wage for expanding categories, and compared it to the composite wage in contracting categories. The employment data were disaggregated into 20 (private-sector) industries and three month averages (March to May). From March 2003 to May 2004, EPI estimated that average wages in expanding industries were 13% lower than in contracting industries.<sup>23</sup> The Chicago Federal Reserve study described above applied a methodology similar to that of EPI, and estimated that from December 2003 to June 2004, earnings in expanding industries were 7% below those in contracting industries.<sup>24</sup>

These EPI and Chicago Fed findings are subject to misunderstanding because expanding and contracting industries were defined in relative, rather than absolute, terms. When most people ask “what type of jobs are being created?,” it is likely that they are thinking of growth in absolute terms — literally, how many thousands of jobs in any given industry have been added. This is not how the two analyses defined expanding and contracting industries. Instead, expansion was measured relative to an industry’s share of total employment. Thus, if an industry experienced a sizable increase in employment in absolute terms, but not as fast as overall job growth, it was counted as contracting. There is nothing wrong with this methodology, but it may not be what the lay reader expected.

A disadvantage of analyses based on industry data is that the industry classifications utilized are too broad to provide very meaningful results. Each industry spans jobs from the unskilled to the highly skilled, which can be seen by looking at an industry’s median wage by occupation. As shown in **Table 5**, every industry contained an occupation that paid substantially above the industry’s median wage and an occupation that paid substantially below its median wage. A one

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<sup>22</sup> Benjamin Tal, *Assessing U.S. Job Quality*, CIBC World Markets newsletter, June 21, 2004, p. 3.

<sup>23</sup> Employment Policy Institute, *Jobs Picture*, June 4, 2004.

<sup>24</sup> Aaronson and Christopher, *Employment Growth in High-Paying Sectors*.

standard deviation change shifts every low wage industry except leisure and hospitality above the overall median wage (\$541 in 2003) and all but two high wage industries (mining and public administration) below the median wage.<sup>25</sup>

**Table 5. Weekly Earnings by Industry, 2003**  
(in dollars)

Industry	Median (total = \$541)	By Occupation		
		Standard Deviation	Minimum	Maximum
<i>Goods-producing sector</i>				
Agriculture and Related	376	194	314	979
Mining	786	295	497	1496
Construction	593	208	312	970
Manufacturing	620	262	386	1125
<i>Service-producing sector</i>				
Wholesale Trade	630	210	326	943
Retail Trade	391	166	284	851
Transportation and Utilities	680	191	458	1064
Information	706	261	160	1101
Financial Activities	636	207	300	936
Professional and Business Services	617	226	325	986
Education and Health Services	548	217	112	877
Leisure and Hospitality	292	175	123	685
Other Services	401	166	266	827
Public Administration	722	154	369	921

**Source:** Created by CRS from BLS data from the CPS based on the 2000 Standard Occupational Classification system and the 2002 North American Industry Classification system.

**Note:** Summary statistics based on the unweighted data for 11 occupations in each industry.

<sup>25</sup> Standard deviation is a common measure of variance that tells how tightly the data points in a sample are clustered around the mean. With a normal distribution, about two-thirds of the data points will fall within plus or minus one standard deviation from the mean.

## Occupation Studies

Few recent studies relied on occupational data, the leading source of which is the CPS. In addition to the previously discussed advantages of utilizing CES rather than CPS data, not all CPS data are seasonally adjusted, so data from different months within a year cannot be compared.

Job gains by occupation from June 2003 to June 2004 were concentrated in the professional, service, construction and extraction, and transportation and material moving occupations. (See **Table 6.**) Employment in these four occupations increased by 1.6 million — more than the total net increase in employment. The same occupation groups along with management, business, and financial operations dominated job growth from June 2001 to June 2004. Service occupations accounted for a larger proportion of job gains over three years than over the last year. In the last year, employment declined in the office and administrative support and production occupations. Those same occupations and farming, fishing, and forestry lost employment over the past three years.

**Table 6. Change in Employment by Occupation**

Occupation	Change in Employment (thousands of workers)	
	June 2003- June 2004	June 2001- June 2004
Management, Business, and Financial Operations	44	630
Professional and Related	279	849
Service	336	1,286
Sales and Related	174	215
Office and Administrative Support	-133	-422
Farming, Fishing, and Forestry	10	-59
Construction and Extraction	503	660
Installation, Maintenance, and Repair	170	335
Production	-434	-1,429
Transportation and Material Moving	443	58

**Source:** Created by CRS from BLS data from the CPS based on the 2000 Standard Occupation Classification system.



The majority staff of the Joint Economic Committee concluded that employment growth between June 2003 and June 2004 was mostly in well paid occupations based on their finding that 71.4% of the growth during that time occurred in the management, business, and financial operations; professional and related; construction and extraction; and installation, maintenance, and repair occupations.<sup>26</sup> The result was reached by dividing the job gain in those four occupations by the net increase in total employment. If the four occupations' employment growth were instead divided by the increase in employment in only growing occupations, the ratio falls to about 50%.

Morgan Stanley characterized job creation from June 2003 to June 2004 as low quality. The study found that 81% of employment growth in that period occurred in occupations which Morgan Stanley characterized as "low-end" — transportation and material moving; non-professional services; sales; and installation, maintenance, and repair.<sup>27</sup> As shown in **Table 7**, however, the installation, maintenance, and repair group paid well above the median wage in 2003.

Unfortunately, the occupation groups in these studies are too broad for their results to be very meaningful. While occupations might be expected to have less variance around the median wage than industries, that is not the case. Median earnings in sales occupations, for example, span from the very low (\$215 for sales workers in the leisure and hospitality industry group) to the very high (\$1,496 for sales workers in the mining industry group). As can be seen in **Table 7**, every occupation contained an industry that paid substantially above the occupation's median wage and all but one (management) contained an industry that paid substantially below the median wage. A one standard deviation change shifts five low paying occupations (sales, transportation, production, office and administration, and farming, fishing, and forestry) above the overall median wage (\$541) and two high paying occupations (protective service, and construction and extraction) below the median wage.

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<sup>26</sup> Joint Economic Committee, *Recent Job Growth is Mostly in Well-Paid Occupations*, press release, July 7, 2004.

<sup>27</sup> Roach, *America's Job-Quality Trap*. Note: This study also analyzed industry data from the CES, which is reviewed above.

**Table 7. Weekly Earnings by Occupation, 2003**  
(in dollars)

Occupation	Median (total = \$541)	By Industry		
		Standard Deviation	Minimum	Maximum
Management	932	145	649	1125
Professional	762	195	469	1070
Protective Service	588	123	276	738
Service	299	127	160	723
Sales	448	319	215	1496
Office and Administrative Support	477	73	350	618
Farming, Fishing, and Forestry	342	192	112	737
Construction and Extraction	577	117	413	802
Installation and Repair	653	104	497	793
Production	501	132	311	741
Transportation and Material Moving	472	127	287	715

**Source:** Created by CRS from BLS data from the CPS based on the 2000 Standard Occupational Classification system and the 2002 North American Industry Classification system.

**Note:** Summary statistics based on the data on the 14 industries for each occupation.

## Occupation-Industry Studies

Because the 11 industry and 14 occupation groups utilized in the above-described studies are so broad, crossing the two can break the data into 154 categories with less wage variance. Unfortunately, greater precision comes at the expense of statistical robustness. Splitting the data into occupation-industry categories does not result in categories of a uniform size. Category size varies from fewer than 1,000 workers to more than 15 million workers.<sup>28</sup> While the average category contains 932,000 workers (less than 1% of total employment), the standard deviation is more than twice the mean. When one considers that a category of 1,000 workers is less than 0.001% of total employment and the data come from a survey of 60,000 households, it becomes clear that there are very few observations for the smaller categories; accordingly, the many smaller categories with small increases or decreases cannot be considered statistically significant (different than zero).<sup>29</sup>

<sup>28</sup> Calculated by CRS from BLS data.

<sup>29</sup> BLS considers earnings data for occupation-industry categories of less than 50,000 (continued...)

Another drawback to the occupation-industry studies is that they, like the industry studies, are sensitive to the starting and ending dates chosen. For example, categories that added jobs in the past year may have lost them since the recession started. These categories may have very different prospects for the future than categories that have continually added jobs since the recession. As shown in **Table 8**, in about one-third of all categories, the employment change over the past year was in the opposite direction of the change over the past four years.

In addition, these studies usually are based on the 154 occupation-industry matrix that BLS developed and successfully applied to employment and earnings data from the 1990s. But, as discussed above in the “Application of This Approach to More Recent Data” section, application of the 154 occupation-industry categories to more recent data is problematic.

**Table 8. Employment Change by Occupation-Industry Category, June 2001-June 2004**

Employment Change	Increase, June 2001-June 2004 (%)	Decrease, June 2001-June 2004 (%)
Increase, June 2003-June 2004	28	20
Decrease, June 2003-June 2004	16	32

**Source:** Created by CRS from BLS data from the CPS.

**Note:** Numbers do not add to 100% because seven occupation-industry groups with less than 1,000 workers are not included. For purposes of this table, zero change is considered a decrease.

Factcheck.org found that from June 2003 to June 2004, employment increased by 1.2 million in occupation-industry categories paying above median wages (of \$541 per week) and decreased by 6,000 in occupation-industry categories paying below median wages. Higher paying categories that experienced large net job gains included construction and extraction occupations in construction, professional occupations in education and health services, and sales occupations in wholesale trade. Lower paying categories that experienced large net job losses included production occupations in manufacturing, and office and administrative occupations in information. Over a longer (3-year) time frame, Factcheck.org estimated that employment increased by 1.6 million in high wage categories and decreased by 547,000 in low wage categories.

*BusinessWeek* found that from June 2003 to June 2004, employment increased by 744,000 in occupation-industry categories paying median wages of at least \$559 per week and increased by 408,000 in occupation-industry categories paying median wages of \$553 or less. (No categories had median earnings between \$553 and \$559,

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<sup>29</sup> (...continued)

workers to not be statistically robust. See Ilg and Haugen, *Earnings and Employment Trends in the 1990s*, p. 32.

according to the analysis.) Although employment in the high wage group represented 48% of total employment, it accounted for more than half of net job growth over the last year. *BusinessWeek* reported that high quality employment growth came from “a variety of sources” (e.g., professionals in wholesale trade and production workers in mining).<sup>30</sup>

Although Factcheck.org and *BusinessWeek* concluded that most net jobs were high wage ones, the difference in magnitude between their growth estimates primarily is due to their allocation of one occupation-industry category. The job category composed of construction and extraction occupations in the construction industry — which gained 528,000 jobs according to Factcheck.org — was placed in the above median wage group by Factcheck.org and in the below median wage group by *BusinessWeek*. As previously explained in this report, the nearness to the earnings boundary of large occupation-industry categories that have accounted for a considerable amount of employment growth thus far during the current decade (e.g., construction and extraction occupations in the construction industry) makes application of the BLS occupation-industry methodology problematic.

The Employment Policy Foundation (EPF) calculates a Job Quality Index, which is the ratio of the change in employment of above-median wage jobs to the change in employment of below-median wage jobs using a 12-month moving average. In contrast with the use of 154 occupation-industry categories by Factcheck.org and *BusinessWeek*, EPF classifies 187 occupation-industry categories as high wage or low wage (based on 1993 earnings data). The index has been rising since 2002.<sup>31</sup>

As with the previously discussed approaches, one shortcoming of all of these studies is that no distinction is made among jobs within the above median wage and below median wage groups. For example, the studies do not make any distinction between employment growth concentrated in jobs that paid far above the median wage and growth concentrated in jobs that paid only one dollar more than the median wage.<sup>32</sup>

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<sup>30</sup> Peter Coy, “Another Look at Those Job Numbers,” *BusinessWeek*, July 26, 2004, p. 35.

<sup>31</sup> The Employment Policy Foundation releases the Job Quality Index on a monthly basis. For the most recent release, see Employment Policy Foundation, “The Myth of Stagnant Wages,” *Employment Trends*, July 23, 2004.

<sup>32</sup> EPI made this argument in a rebuttal to the Factcheck.org study. EPI also criticized the Factcheck.org study for using overly broad industry categories. Using the same data as Factcheck.org and the same methodology as in EPI’s industry study reviewed above, it found that between June 2003 and June 2004, contracting categories had a median weekly wage \$44 or 7% higher than expanding categories. Between June 2001 and June 2004, contracting categories had a median weekly wage \$59 or 10% higher than expanding categories. Based on these findings, EPI concluded that expanding categories are of lower quality than contracting categories. Elise Gould, et al., “Assessing Job Quality,” *EPI Issue Brief #200*, July 28, 2004.

## What Can Be Said About New Job Quality?

There are many ways to conduct a study on new job quality. The study can be based on industry data, occupation data, or a combination of the two. A study can compare the wages of expanding sectors to declining sectors or compare the employment change in high wage sectors to the change in low wage sectors. A sector can be considered to be rising or falling in absolute terms, or as a share of overall employment. Unsurprisingly, this means that the same data can yield very different results, as is the case with the studies discussed in this report.

When aggregating the 154 occupation-industry categories, one can lose perspective of which categories are driving the results. For example, when results are divided into an above median wage category and a below median wage category, categories very close to the median wage are treated the same as categories very far from the median. This suggests that the results would be extremely sensitive to changes in employment in jobs close to the median wage — which BLS reports is the reason that it has not completed an occupation-industry study utilizing recent data. This is a drawback to nearly all the studies reviewed in this report (the EPI study is a notable exception).

Of the 80 categories with increasing employment from June 2003-June 2004 (the same time periods used in the Factcheck.org and EPI studies), 51% of the increase is accounted for by the 10 categories with the largest increases. Besides making the results more manageable, focusing on the top 10 categories has the advantage of eliminating changes in smaller categories whose results may not be statistically significant and may be overly sensitive to the time period selected. As seen in **Table 9**, construction and extraction occupations in the construction industry (an increase of 464,000) and professional occupations in the education and health services industry (an increase of 447,000) were by far the biggest job gainers, accounting for 23% of the total increase between them. The former paid a median wage very close to the overall median, and the latter paid a median wage much higher than the overall median. The professional occupations in the education and health services category illustrates that even when divided into 154 categories, some categories still contain such a broad array of jobs that it is difficult to be certain exactly what types of jobs were actually created. Of the remaining eight categories, three were far below the median wage, two were far above the median wage, and three were near the median wage. Six of the 10 largest increases occurred in the education and health services industry, which has far more employment overall than any other industry group, and the professional and business services industry group, which contains industries paying a wide range of wages.

**Table 9. Largest Increases in Employment by Occupation-Industry Category, June 2003-June 2004**

Occupation/Industry	Increase in Employment (thousands)	Median Weekly Wage 2003 (\$)
Construction and Extraction/Construction	464	553
Professional/Education and Health Services	447	691
Management/Financial Activities	208	876
Transportation/Transportation and Utilities	172	597
Service/Professional and Business Services	167	325
Sales/Professional and Business Services	137	506
Service/Education and Health Services	127	326
Office and Administrative/ Education and Health Services	123	453
Installation and Repair/Professional and Business Services	111	632
Transportation/Manufacturing	109	494

**Source:** Created by CRS from BLS data from the CPS.

When a similar exercise is completed for the occupation-industry categories with the largest decreases in employment in the last year, the top 11 categories (two categories are tied for tenth) accounted for 52% of the overall decline. (See **Table 10.**) The declining categories were spread more evenly across industries and occupations than the increasing categories; the second and third largest categories were within the manufacturing industry. Of the declining categories, three paid far below the median wage (all of which were among the five largest declines), two paid below but near the median wage, and six paid above the median wage (two of which paid about double the median wage).

**Table 10. Largest Decreases in Employment by Occupation/Industry Category, June 2003-June 2004**

Occupation/Industry	Decrease in Employment (thousands)	Median Weekly Wage 2003 (\$)
Office and Administrative/Retail Trade	-228	369
Management/Manufacturing	-181	1125
Production/Manufacturing	-162	509
Production/Education and Health Services	-115	354
Protective/Professional and Business Services	-115	394
Professional/Professional and Business Services	-115	938
Installation and Repair/Transportation and Utilities	-111	789
Management/Information	-94	1101
Office and Administrative/Information	-86	497
Professional/Other services	-84	611
Management/Other services	-84	827

**Source:** Created by CRS from BLS data from the CPS.

## Uses and Limitations of the Data

Job quality is a concept that embodies many factors, including wages, benefits, work environment, physical safety, job security, and so on. Earnings are the only one of these factors for which comprehensive data exist, and so they are the usual indicator of quality. There are no data available that directly answer the question of what wages are paid to the newly created jobs in the economy. The closest that researchers can get to answering that question is to find out what industry or occupation the new jobs are located in and what the average/median earnings are for that industry or occupation. Industry and occupation categories are too broad to give very meaningful information on job quality, however. Combining them gives more precise information, but at the cost of statistical robustness for some of the smaller categories.

Different studies have reached starkly opposite conclusions. Some of the differences can be attributed to the fact that the studies covered different time periods; some are due to differences in methodology. Looking at the occupation-industry categories that have contributed the largest portion of the increase or decrease in employment suggests that most of the studies have arguably drawn overly simplified conclusions on the question of new job quality. Both the large expanding and contracting categories fall throughout the pay spectrum: based on the data in **Tables 9 and 10**, there does not appear to be a strong correlation between earnings levels and employment gains or losses.

While these data give us some indication of the state of one segment of the labor market, they tell us little about the overall labor market. That is, information on the 1.4 million jobs created in the past year tells us little about the overall 139 million jobs or the 8.2 million unemployed workers in the U.S. economy. The wages of 1.4 million new jobs tell us little about how much overall earnings are rising (real wage growth has been low since the last expansion), and they tell us little about other important factors such as fringe benefits and working conditions.<sup>33</sup> They also give no indication if the distribution of earnings has become more or less equal.<sup>34</sup> Changes in the earnings of workers who remain in the same job or who move from one already existing job to another are likely to have a much larger effect on the overall labor market than new jobs.

Wage data on net new jobs also do not shed light on the subsequent labor market experience of people who lost jobs. A periodic supplement to the CPS, the Displaced Worker Survey, asks long-tenured workers detailed questions about their post-displacement history. Workers with at least three years of job tenure are considered displaced if they lost a job because their plant or company closed or moved, there was insufficient work, or their position or shift was abolished. In the most recent survey, which covers 2001-2003, 5.3 million workers were displaced and 65% of the displaced workers were reemployed at the time of the survey. Of those who lost full-time jobs and subsequently found new jobs, 10% were working part time, 24% were working full time at wages that were at least 20% lower than their previous job, and 30% were reemployed at higher wages.<sup>35</sup> The data utilized to assess the quality of new jobs do not address whether displaced workers were able to obtain new jobs that are high or low paying relative to their former jobs.

Expanding and contracting occupation-industry groups might be of interest if they accurately predicted which occupation-industry groups would expand or contract over the entire expansion, but this may not be the case. For example, the rapid increase in construction employment may not continue once interest rates rise. This example suggests that, in the short run, changes in product demand are an important determinant of where job creation occurs — and these largely uncontrollable changes can affect workers at any wage level. It may also be that lower wage jobs are the first to be created in an expansion, and higher wage jobs come later — as was the case in past expansions.<sup>36</sup> For example, employment growth in temporary help agencies tends to lead overall employment. For the labor market as a whole, the slow rate of employment and wage growth are more noteworthy to date in this economic expansion than the quality of jobs being created

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<sup>33</sup> David R. Francis, “The Two Economies: The Economy is Growing and Jobs are Being Created but Wages Don’t Keep Up,” *The Christian Science Monitor*, Aug. 4, 2004.

<sup>34</sup> For more information, see CRS Report RL31616, *The Distribution of Earnings of Wage and Salary Workers in the United States, 1994-2003*, by Gerald Mayer.

<sup>35</sup> Bureau of Labor Statistics, *Worker Displacement, 2001-2003*, news release USDL04-1381, July 30, 2004.

<sup>36</sup> Ilg and Haugen, *Earnings and Employment Trends in the 1990s* and Aaronson and Christopher, *Employment Growth in Higher-Paying Sectors*.