

# Business employment dynamics: new data on gross job gains and losses

*The new BLS business employment dynamics data series captures establishment-level employment changes that are absent from other BLS series; the detail provided gives researchers insight into business openings, closings, expansions, and contractions across the stages of the business cycle*

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One of the most watched economic indicators in the United States is the monthly change in nonfarm payroll employment released by the Bureau of Labor Statistics. Changes in this indicator can affect stock market movements and interest rate decisions considerably. The monthly change in nonfarm payroll employment gives the *net* change in the number of jobs over a particular month—the overall change, given that some establishments have opened, some have expanded, some have contracted, and some have closed. This article presents new BLS data on quarterly *gross* job gains and losses, documents their magnitude, and examines the historical time series having to do with these statistics from 1992 to 2003.

The new BLS measures of gross job gains and gross job losses afford a more thorough understanding of the employment decisions of the millions of business establishments in the U.S. economy. Examining establishment-level employment changes aids in analyzing both the large gross job flows that underlie the substantially smaller net employment changes and the establishment-level employment dynamics across various stages of the business cycle.

The article begins with definitions of *gross job gains* and *gross job losses*. Following this introductory section are a description of the source data used by the Bureau to generate estimates of quarterly gross job gains and gross job losses and an explanation of the methodology employed for longitudinally linking establishment records. The

heart of the article is the presentation of the new BLS business employment dynamics data series, together with an analysis of the levels and movements of gross job gains and gross job losses during the past 10 years. Special attention is given to technical issues such as the seasonal adjustment of gross job gains and gross job losses, how the business employment dynamics data compare with other BLS establishment-based employment series, and establishment openings and closings relative to births and deaths. The article concludes with a summary of ongoing work and planned future enhancements to the gross job gains and gross job loss statistics at the Bureau.

## Concepts and definitions

The net result of the millions of business establishments in the U.S. economy changing their specific employment levels is a change in aggregate employment from one quarter to the next. While this aggregate net change identifies the overall growth or decline of the labor market, it does not convey the underlying heterogeneity of the many establishments that open, expand, contract, and close every quarter. By contrast, statistics on gross job gains and gross job losses aggregate the establishment-level employment changes in such a way that one can observe and assess the underlying dynamics.<sup>1</sup>

The Bureau uses a number of definitions pertaining to gross job gains and gross job losses. *Gross job gains* are the sum of all employment

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increases at either opening or expanding establishments. An *opening* establishment is an establishment that has positive employment in the current quarter and that either had zero employment or was not in the database the previous quarter. An *expanding* establishment is a continuous unit that increases its employment from a positive level in the previous quarter to a higher level in the current quarter. *Gross job losses* are the sum of all employment losses at either closing or contracting establishments. A *closing* establishment is an establishment that had positive employment in the previous quarter and that either has zero employment or is not in the database in the current quarter. A *contracting* establishment is a continuous unit that decreases its employment from the previous quarter to a lower positive level in the current quarter. The familiar net change in employment is the difference between the gross job gains and the gross job losses.

Many establishments do not change their level of employment from one quarter to the next. For example, between the first and second quarters of 2003, 3.1 million U.S. establishments with workers did not change their employment levels. Those establishments which keep their employment constant do not contribute to the count of either gross job gains or gross job losses. However, such establishments and their employment levels are included in the count of the total number of establishments and the aggregate level of employment.

By dividing estimates of gross job gains and gross job losses by the average of the current and previous quarters' employment, the Bureau expresses those estimates as *rates*. This approach provides a symmetric growth rate, so that one can add and subtract the rates just as one can the levels. For instance, the net growth rate is the difference of the gross job gain rate and the gross job loss rate.

An example can help clarify the concepts of gross job gains and gross job losses. For the rest of this paragraph, the data discussed are not seasonally adjusted. In March 2003 there were 105,079,625 jobs, and in June 2003 there were 107,615,979 jobs. Thus, employment increased by 2,536,354 jobs during the second quarter of 2003. This employment growth can be decomposed into expanding, opening, contracting, and closing establishments. Employment in expanding establishments grew by 7,229,797 jobs, employment in opening establishments by 1,754,671 jobs. The level of gross job gains was 8,984,468 jobs during the second quarter of 2003, a rate of 8.5 percent. Employment in contracting establishments declined by 5,093,167 jobs, and closing establishments accounted for the loss of 1,354,947 jobs. The level of gross job losses was 6,448,114 jobs during the second quarter of 2003, a rate of 6.1 percent. The difference between the gross job gains and the gross job losses constituted the net employment increase of 2,536,354 jobs, a rate of 2.4 percent.

Both gross job gains and gross job losses are the sums of

net changes in employment at the establishment level and are referred to collectively as *gross job flows*. For example, if an establishment increases its employment from 100 workers to 120 workers, the 20 additional jobs are classified as gross job gains. This count of gross job gains does not measure the dynamics of workers into and out of jobs in the establishment. For instance, the addition of 20 jobs during the quarter might have occurred either with the addition of 20 new hires or by the net of 30 new hires and 10 separations. Counts of hires and separations, referred to as *worker flows*, are published monthly by the Job Openings and Labor Turnover Survey (JOLTS) program at the Bureau.

### Longitudinal establishment microdata

*Source of data.* The source of the data used for constructing the new BLS business employment dynamics data series is the Quarterly Census of Employment and Wages (QCEW), also known as the ES-202 program. A comprehensive and accurate source of information on employment and wages, the data gathered in the QCEW program provide a virtual census (98 percent) of employees on nonfarm payrolls. In the second quarter of 2003, the QCEW statistics show an employment level of 129.2 million, in 8.2 million establishments in the U.S. economy. The QCEW data are derived from quarterly Unemployment Insurance (UI) administrative microdata. All employers subject to State UI laws are required to submit quarterly reports detailing their monthly employment and quarterly wages to the State Employment Security Agencies. After the microdata are edited and, if necessary, corrected by the State Labor Market Information staff, the States submit the data and other business identification information to the Bureau as part of the Federal-State cooperative QCEW program.

Because the gross job gain and gross job loss statistics are defined from the establishment-level employment changes, it is important to mention the definitions of *establishment* and *employment* in the QCEW program. An *establishment* is an economic unit that produces goods or services, usually a physical location engaged in one or predominantly one type of economic activity. Thus, an establishment is different from a firm or a company, which may consist of one or more establishments at several locations. The Bureau, in cooperation with the States, takes many steps to ensure that employers with multiple establishments in a given State report employment and wage data for specific establishments. *Employment* is defined as the number of workers covered by the UI program (and whose wages are therefore subject to employer UI taxes) who earned wages during the pay period that includes the 12th of the month. The quarterly UI microdata contain information on monthly employment; the gross job gain and gross job loss statistics use employment in the third month of the quarter as the measure of an establishment's quarterly employment.

The gross job gain and gross job loss statistics published by the Bureau are derived from a subset of the establishments covered in the QCEW database. Government establishments are excluded, as are both private households (NAICS 814110) and establishments with zero employment in two consecutive quarters. Establishments in Puerto Rico and the Virgin Islands also are excluded.

*The linkage methodology.* Following establishments across time with administrative UI microdata is a complex and challenging exercise. Creating the business employment dynamics data series requires a thorough understanding of how businesses operate and how they file their UI tax forms. The manner in which businesses report administrative changes and changes in ownership can result in establishments obtaining new UI identifiers even though no economic changes occurred. Failing to capture and link such noneconomic changes would result in an overstatement of establishment openings and closings and thus an overstatement of job turnover in the economy. Accordingly, the Bureau has developed a multistep process for linking business establishment data over time.<sup>2</sup> The process consists of four steps: two distinct administrative matches, a probability-based weighted match, and an analyst intervention match.

The BLS linkage process is based on the unique establishment identifier maintained by the States. The first step is to link establishments that maintain the same identifier across quarters. This step is followed by a match using predecessor and successor information that identifies distinct establishments as continuous across quarters in situations where the UI establishment identifier changes as a result of a change in ownership or a change in the reporting configuration of a multiestablishment company. In most cases, businesses that buy another business must report their assumption of liability for paying the bought-out business' UI taxes to the State. These reported linkages make up the vast majority of predecessor and successor linkages; others are identified by the State Labor Market Information staff. The third step in the BLS linkage process is a probability-based weighted match, using information such as the name, street address, and telephone number of the establishment to link a closing establishment in the previous quarter with an opening establishment in the current quarter when continuity appears to warrant such a linkage. The final step in the matching process is an analyst's review and possible manual linkage of selected large unmatched records.

## Gross job gains and gross job losses

*Cross-sectional results.* The seasonally adjusted time series of gross job gains and gross job losses are presented in table 1. During the second quarter of 2003, the economy lost a (seasonally adjusted) total of 180,000 jobs. This

employment decline is the net result of two factors: the jobs gained by opening and expanding establishments and the jobs lost by closing and contracting establishments. Opening and expanding establishments gained 7.5 million jobs in the second quarter of 2003, while closing and contracting establishments lost 7.7 million jobs. Each of these figures is substantially larger than the net employment change statistic, which illustrates the sizable amount of job "churning" that occurs in the U.S. economy every quarter.

Gross job gains result from expanding and opening establishments. How large are these two components relative to each other? Table 1 shows that, in the second quarter of 2003, employment in expanding establishments grew by 6.0 million jobs and employment in opening establishments grew by 1.5 million. These statistics indicate that expanding establishments account for 80 percent, and opening establishments for 20 percent, of quarterly gross job gains. With regard to gross job losses, employment in contracting establishments declined by 6.1 million jobs, employment in closing establishments by 1.6 million jobs. Thus, contracting establishments accounted for 80 percent, and closing establishments for 20 percent, of quarterly gross job losses. Expanding and contracting establishments accounted for most jobs gained and lost when measured quarterly.

Measured in percentages rather than levels, the gross job gain rate in the U.S. private-sector economy was 7.0 percent between March 2003 and June 2003, and the gross job loss rate for the quarter was 7.3 percent. (See table 2.) The interpretation of these statistics is that the jobs gained in opening and expanding establishments during the quarter made up 7.0 percent of the total number of jobs and the jobs lost from closing and contracting establishments during the quarter constituted 7.3 percent of the total number of jobs. The difference of -0.3 percent between the gross job gain rate and the gross job loss rate is the net employment growth rate, seasonally adjusted, between March 2003 and June 2003.

An important component of the business employment dynamics data series is the establishment counts underlying the gross job gains and gross job losses. These counts are reported in table 3 on a seasonally adjusted basis, with rates given in table 4. Looking at the second quarter of 2003 in each table reveals that there were about 1.5 million expanding establishments (22.6 percent of all active establishments) and 1.5 million contracting establishments (22.9 percent) during the quarter. Approximately 332,000 establishments (5.2 percent) opened during the quarter, and 337,000 establishments (5.3 percent) closed during the quarter. The difference of the number of opening establishments and the number of closing establishments (-5,000) is the net change in the number of active establishments during the quarter.<sup>3</sup>

The statistics from tables 1 and 3 indicate that the average expanding establishment added 4.1 jobs during the quarter

**Table 1. Private-sector gross job gains and job losses, seasonally adjusted quarterly data, September 1992 to June 2003**

[In thousands]

3 months ended—	Net change <sup>1</sup>	Gross job gains			Gross job losses		
		Total	Expanding establishments	Opening establishments	Total	Contracting establishments	Closing establishments
1992:							
September .....	276	7,233	5,528	1,705	6,957	5,362	1,595
December .....	344	7,162	5,504	1,658	6,818	5,428	1,390
1993:							
March .....	534	7,511	5,532	1,979	6,977	5,318	1,659
June .....	636	7,290	5,757	1,533	6,654	5,260	1,394
September .....	709	7,383	5,770	1,613	6,674	5,322	1,352
December .....	754	7,481	5,876	1,605	6,727	5,357	1,370
1994:							
March .....	643	7,502	5,880	1,622	6,859	5,401	1,458
June .....	880	7,761	6,033	1,728	6,881	5,400	1,481
September .....	1,025	7,838	6,121	1,717	6,813	5,493	1,320
December .....	614	7,682	6,044	1,638	7,068	5,602	1,466
1995:							
March .....	830	7,858	6,180	1,678	7,028	5,647	1,381
June .....	307	7,705	6,020	1,685	7,398	5,934	1,464
September .....	673	7,873	6,211	1,662	7,200	5,667	1,533
December .....	570	8,023	6,287	1,736	7,453	5,916	1,537
1996:							
March .....	432	7,980	6,262	1,718	7,548	6,030	1,518
June .....	594	8,111	6,329	1,782	7,517	5,961	1,556
September .....	590	8,146	6,285	1,861	7,556	5,988	1,568
December .....	827	8,267	6,390	1,877	7,440	5,906	1,534
1997:							
March .....	823	8,305	6,463	1,842	7,482	5,886	1,596
June .....	627	8,139	6,386	1,753	7,512	5,924	1,588
September .....	876	8,608	6,674	1,934	7,732	5,972	1,760
December .....	642	8,673	6,674	1,999	8,031	6,098	1,933
1998:							
March .....	777	8,829	6,668	2,161	8,052	6,120	1,932
June .....	677	8,739	6,601	2,138	8,062	6,191	1,871
September .....	759	8,587	6,600	1,987	7,828	6,123	1,705
December .....	619	8,482	6,704	1,778	7,863	6,115	1,748
1999:							
March .....	401	8,804	6,720	2,084	8,403	6,454	1,949
June .....	587	8,806	6,803	2,003	8,219	6,383	1,836
September .....	752	8,938	6,931	2,007	8,186	6,335	1,851
December .....	950	9,066	7,046	2,020	8,116	6,303	1,813
2000:							
March .....	719	8,847	6,938	1,909	8,128	6,414	1,714
June .....	534	8,723	6,938	1,785	8,189	6,463	1,726
September .....	407	8,854	6,930	1,924	8,447	6,620	1,827
December .....	301	8,680	6,867	1,813	8,379	6,594	1,785
2001:							
March .....	-281	8,474	6,700	1,774	8,755	6,883	1,872
June .....	-782	8,217	6,413	1,804	8,999	7,115	1,884
September .....	-1,080	7,898	6,104	1,794	8,978	7,060	1,918
December .....	-808	7,902	6,083	1,819	8,710	6,930	1,780
2002:							
March .....	-276	8,013	6,200	1,813	8,289	6,545	1,744
June .....	-81	8,010	6,223	1,787	8,091	6,372	1,719
September .....	71	7,922	6,208	1,714	7,851	6,257	1,594
December .....	-70	7,746	6,114	1,632	7,816	6,189	1,627
2003:							
March .....	-478	7,441	5,904	1,537	7,919	6,361	1,558
June .....	-180	7,510	5,988	1,522	7,690	6,140	1,550

<sup>1</sup> Net change is the difference between total gross job gains and total gross job losses.

**Table 2. Private-sector gross job gains and job losses, as a percentage of employment,<sup>1</sup> seasonally adjusted quarterly data, September 1992 to June 2003**

[In percent]

3 months ended—	Net change <sup>2</sup>	Gross job gains			Gross job losses		
		Total	Expanding establishments	Opening establishments	Total	Contracting establishments	Closing establishments
1992:							
September .....	.3	8.1	6.2	1.9	7.8	6.0	1.8
December .....	.2	7.9	6.1	1.8	7.7	6.1	1.6
1993:							
March .....	.6	8.3	6.1	2.2	7.7	5.9	1.8
June .....	.8	8.1	6.4	1.7	7.3	5.8	1.5
September .....	.8	8.1	6.3	1.8	7.3	5.8	1.5
December .....	.8	8.1	6.4	1.7	7.3	5.8	1.5
1994:							
March .....	.7	8.1	6.3	1.8	7.4	5.8	1.6
June .....	.9	8.3	6.5	1.8	7.4	5.8	1.6
September .....	1.1	8.3	6.5	1.8	7.2	5.8	1.4
December .....	.6	8.0	6.3	1.7	7.4	5.9	1.5
1995:							
March .....	.8	8.1	6.4	1.7	7.3	5.9	1.4
June .....	.3	7.9	6.2	1.7	7.6	6.1	1.5
September .....	.7	8.1	6.4	1.7	7.4	5.8	1.6
December .....	.5	8.2	6.4	1.8	7.7	6.1	1.6
1996:							
March .....	.6	8.2	6.4	1.8	7.6	6.1	1.5
June .....	.6	8.2	6.4	1.8	7.6	6.0	1.6
September .....	.6	8.2	6.3	1.9	7.6	6.0	1.6
December .....	.9	8.3	6.4	1.9	7.4	5.9	1.5
1997:							
March .....	.8	8.2	6.4	1.8	7.4	5.8	1.6
June .....	.6	8.0	6.3	1.7	7.4	5.8	1.6
September .....	.9	8.4	6.5	1.9	7.5	5.8	1.7
December .....	.6	8.4	6.5	1.9	7.8	5.9	1.9
1998:							
March .....	.7	8.5	6.4	2.1	7.8	5.9	1.9
June .....	.6	8.3	6.3	2.0	7.7	5.9	1.8
September .....	.8	8.2	6.3	1.9	7.4	5.8	1.6
December .....	.5	8.0	6.3	1.7	7.5	5.8	1.7
1999:							
March .....	.4	8.3	6.3	2.0	7.9	6.1	1.8
June .....	.6	8.3	6.4	1.9	7.7	6.0	1.7
September .....	.7	8.3	6.4	1.9	7.6	5.9	1.7
December .....	.9	8.4	6.5	1.9	7.5	5.8	1.7
2000:							
March .....	.6	8.1	6.4	1.7	7.5	5.9	1.6
June .....	.4	7.9	6.3	1.6	7.5	5.9	1.6
September .....	.3	8.0	6.3	1.7	7.7	6.0	1.7
December .....	.2	7.8	6.2	1.6	7.6	6.0	1.6
2001:							
March .....	-.2	7.7	6.1	1.6	7.9	6.2	1.7
June .....	-.8	7.4	5.8	1.6	8.2	6.5	1.7
September .....	-1.1	7.2	5.6	1.6	8.3	6.5	1.8
December .....	-.7	7.3	5.6	1.7	8.0	6.4	1.6
2002:							
March .....	-.2	7.5	5.8	1.7	7.7	6.1	1.6
June .....	.0	7.5	5.8	1.7	7.5	5.9	1.6
September .....	.1	7.4	5.8	1.6	7.3	5.8	1.5
December .....	-.1	7.2	5.7	1.5	7.3	5.8	1.5
2003:							
March .....	-.5	6.9	5.5	1.4	7.4	5.9	1.5
June .....	-.3	7.0	5.6	1.4	7.3	5.8	1.5

<sup>1</sup>The rates measure gross job gains and gross job losses as a percentage of the average of the previous and current employment figures.

<sup>2</sup> Net change is the difference between total gross job gains and total gross job losses.

**Table 3. Private-sector establishments, by direction of employment change, seasonally adjusted quarterly data, September 1992 to June 2003**

[In thousands]

3 months ended—	Net change <sup>1</sup>	Establishments gaining jobs			Establishments losing jobs		
		Total	Expanding establishments	Opening establishments	Total	Contracting establishments	Closing establishments
1992:							
September .....	11	1,576	1,287	289	1,541	1,263	278
December .....	24	1,591	1,294	297	1,534	1,261	273
1993:							
March .....	32	1,614	1,310	304	1,537	1,265	272
June .....	26	1,631	1,337	294	1,521	1,253	268
September .....	37	1,647	1,348	299	1,530	1,268	262
December .....	23	1,655	1,365	290	1,544	1,277	267
1994:							
March .....	13	1,644	1,356	288	1,576	1,301	275
June .....	29	1,700	1,390	310	1,570	1,289	281
September .....	38	1,715	1,404	311	1,579	1,306	273
December .....	13	1,693	1,394	299	1,613	1,327	286
1995:							
March .....	31	1,717	1,411	306	1,616	1,341	275
June .....	26	1,697	1,390	307	1,640	1,359	281
September .....	7	1,715	1,412	303	1,649	1,353	296
December .....	23	1,726	1,409	317	1,656	1,362	294
1996:							
March .....	15	1,736	1,424	312	1,663	1,366	297
June .....	22	1,745	1,426	319	1,674	1,377	297
September .....	36	1,762	1,432	330	1,675	1,381	294
December .....	35	1,787	1,455	332	1,673	1,376	297
1997:							
March .....	31	1,801	1,471	330	1,683	1,384	299
June .....	18	1,783	1,463	320	1,702	1,400	302
September .....	17	1,810	1,482	328	1,706	1,395	311
December .....	9	1,818	1,482	336	1,736	1,409	327
1998:							
March .....	19	1,814	1,469	345	1,738	1,412	326
June .....	56	1,841	1,487	354	1,706	1,408	298
September .....	22	1,824	1,488	336	1,744	1,430	314
December .....	2	1,831	1,512	319	1,730	1,413	317
1999:							
March .....	11	1,827	1,493	334	1,766	1,443	323
June .....	-1	1,847	1,506	341	1,785	1,443	342
September .....	16	1,860	1,510	350	1,783	1,449	334
December .....	36	1,903	1,539	364	1,758	1,430	328
2000:							
March .....	24	1,882	1,525	357	1,810	1,477	333
June .....	20	1,876	1,526	350	1,819	1,489	330
September .....	23	1,879	1,520	359	1,821	1,485	336
December .....	12	1,863	1,512	351	1,831	1,492	339
2001:							
March .....	5	1,849	1,502	347	1,841	1,499	342
June .....	-3	1,811	1,473	338	1,861	1,520	341
September .....	-8	1,774	1,435	339	1,878	1,531	347
December .....	6	1,775	1,429	346	1,856	1,516	340
2002:							
March .....	4	1,786	1,444	342	1,834	1,496	338
June .....	6	1,794	1,447	347	1,825	1,484	341
September .....	38	1,805	1,460	345	1,781	1,474	307
December .....	12	1,798	1,453	345	1,809	1,476	333
2003:							
March .....	-4	1,756	1,420	336	1,859	1,519	340
June .....	-5	1,783	1,451	332	1,802	1,465	337

<sup>1</sup> Net change is the difference between the number of opening establishments and the number of closing establishments.

**Table 4. Private-sector establishments, by direction of employment change, as a percentage of total establishments,<sup>1</sup> seasonally adjusted quarterly data, September 1992 to June 2003**

[In percent]

3 months ended—	Net change <sup>2</sup>	Establishments gaining jobs			Establishments losing jobs		
		Total	Expanding establishments	Opening establishments	Total	Contracting establishments	Closing establishments
1992:							
September .....	0.2	29.5	24.1	5.4	28.8	23.6	5.2
December .....	.4	29.6	24.1	5.5	28.6	23.5	5.1
1993:							
March .....	.6	29.8	24.2	5.6	28.4	23.4	5.0
June .....	.5	29.9	24.5	5.4	27.9	23.0	4.9
September .....	.6	30.0	24.6	5.4	27.9	23.1	4.8
December .....	.4	29.9	24.7	5.2	27.9	23.1	4.8
1994:							
March .....	.2	29.6	24.4	5.2	28.4	23.4	5.0
June .....	.6	30.5	24.9	5.6	28.1	23.1	5.0
September .....	.6	30.5	25.0	5.5	28.2	23.3	4.9
December .....	.2	30.0	24.7	5.3	28.6	23.5	5.1
1995:							
March .....	.6	30.3	24.9	5.4	28.4	23.6	4.8
June .....	.5	29.7	24.3	5.4	28.7	23.8	4.9
September .....	.1	29.9	24.6	5.3	28.8	23.6	5.2
December .....	.4	30.0	24.5	5.5	28.8	23.7	5.1
1996:							
March .....	.3	30.0	24.6	5.4	28.7	23.6	5.1
June .....	.4	30.1	24.6	5.5	28.8	23.7	5.1
September .....	.7	30.2	24.5	5.7	28.6	23.6	5.0
December .....	.5	30.4	24.8	5.6	28.5	23.4	5.1
1997:							
March .....	.5	30.5	24.9	5.6	28.5	23.4	5.1
June .....	.3	30.0	24.6	5.4	28.7	23.6	5.1
September .....	.3	30.3	24.8	5.5	28.6	23.4	5.2
December .....	.1	30.4	24.8	5.6	29.0	23.5	5.5
1998:							
March .....	.3	30.2	24.5	5.7	28.9	23.5	5.4
June .....	1.0	30.5	24.6	5.9	28.2	23.3	4.9
September .....	.3	30.0	24.5	5.5	28.7	23.5	5.2
December .....	.0	30.0	24.8	5.2	28.4	23.2	5.2
1999:							
March .....	.2	29.9	24.4	5.5	28.9	23.6	5.3
June .....	.0	30.2	24.6	5.6	29.2	23.6	5.6
September .....	.3	30.3	24.6	5.7	29.0	23.6	5.4
December .....	.6	30.9	25.0	5.9	28.5	23.2	5.3
2000:							
March .....	.4	30.4	24.6	5.8	29.2	23.8	5.4
June .....	.3	30.1	24.5	5.6	29.2	23.9	5.3
September .....	.3	30.0	24.3	5.7	29.1	23.7	5.4
December .....	.2	29.7	24.1	5.6	29.2	23.8	5.4
2001:							
March .....	.1	29.4	23.9	5.5	29.2	23.8	5.4
June .....	.0	28.8	23.4	5.4	29.5	24.1	5.4
September .....	-.1	28.2	22.8	5.4	29.8	24.3	5.5
December .....	.1	28.2	22.7	5.5	29.5	24.1	5.4
2002:							
March .....	.0	28.3	22.9	5.4	29.1	23.7	5.4
June .....	.1	28.4	22.9	5.5	28.8	23.4	5.4
September .....	.6	28.4	23.0	5.4	28.0	23.2	4.8
December .....	.2	28.2	22.8	5.4	28.3	23.1	5.2
2003:							
March .....	.0	27.5	22.2	5.3	29.0	23.7	5.3
June .....	-.1	27.8	22.6	5.2	28.2	22.9	5.3

<sup>1</sup> The rates measure establishments gaining or losing jobs as a percentage of the average of the number of establishments in the previous and current quarters.

<sup>2</sup> Net change is the difference between total gross job gains and total gross job losses.

(5.988 million jobs divided by 1.451 million establishments) and the average contracting establishment lost 4.2 jobs during the quarter (6.140 million jobs divided by 1.465 million establishments). A similar calculation shows that the average opening establishment starts with 4.6 employees in its first quarter of positive employment and the average closing establishment is responsible for the loss of 4.6 employees in the final quarter in which it still has employees.

These business employment dynamics data add to the labor market statistics currently available from the Bureau. The traditional measure of net employment change produced by the Bureau indicates that employment fell by 180,000 jobs (seasonally adjusted) during the second quarter of 2003. The gross job gains and gross job loss statistics signal that this net employment loss is the result of 6.0 million jobs added at 1.5 million expanding establishments, 1.5 million jobs added at 332,000 opening establishments, 6.1 million jobs lost at 1.5 million contracting establishments, and 1.6 million jobs lost at 337,000 closing establishments. These large gross job flows underlie the substantially smaller net employment change statistic and were calculated from the same administrative UI microdata, without any additional data collection efforts or any additional burden on respondents.

The business employment dynamics statistics also expand our understanding of the U.S. economy. Primarily, the gross job flow and establishment flow statistics reveal the tremendous amount of churning underlying the net growth rates. Each quarter in the U.S. economy, millions of establishments remaining in operation are adding or subtracting from their workforces, creating a turnover of millions of jobs. At the same time, hundreds of thousands of establishments open and close, causing the simultaneous gain and loss of millions of jobs. These business employment dynamics statistics demonstrate that a sizable number of jobs and establishments appear and disappear in the short time frame of 3 months.

*Time-series results.* The business employment dynamics data for any given quarter highlight the large amount of churning that underlies net employment growth. One of the principal uses of these data is to gain an understanding of this continuous churning over the course of the business cycle, which, to a large degree, is defined by the growth (or shrinkage) of employment. The new BLS gross job gain and gross job loss statistics will enable researchers to analyze the extent to which economic recessions and expansions are characterized by changes in business expansions and openings, by changes in business contractions and closings, or by a combination of the two.

Chart 1 shows the quarterly net employment growth rate from the new BLS business employment dynamics data series. The recent recession, which was dated by the National Bureau of Economic Research (NBER) as occurring between March 2001 and November 2001, is clearly evident. Prior to the recession,

between the third quarter of 1992 and the first quarter of 2000, net employment growth had been positive every quarter, averaging 0.7 percent per quarter. But then, during the recession, net employment growth was negative in all quarters of 2001, with a low of -1.1 percent in the third quarter.

The seasonally adjusted gross job gain and gross job loss rates are plotted in chart 2. As explained earlier, the difference between the gross job gain rate and the gross job loss rate is the familiar net employment growth rate depicted in chart 1. When gross job gains are above gross job losses, there are net employment gains; when gross job losses exceed gross job gains, there are net employment losses.

The most recent business cycle is evident in chart 2. Between the third quarter of 1992 and the first quarter of 2000, the gross job gain rate was relatively constant, averaging 8.2 percent per quarter, and the gross job loss rate also was relatively constant, averaging 7.5 percent per quarter. The gross job gain rate started to decline in 2000 and dropped substantially in 2001 (to 7.2 percent in the third quarter of the latter year). The gross job loss rate increased considerably in 2001, rising to a high of 8.3 percent in the third quarter. Thus, the declining net employment growth rate during the first three quarters of 2001 is characterized by both a falling gross job gain rate and a rising gross job loss rate.

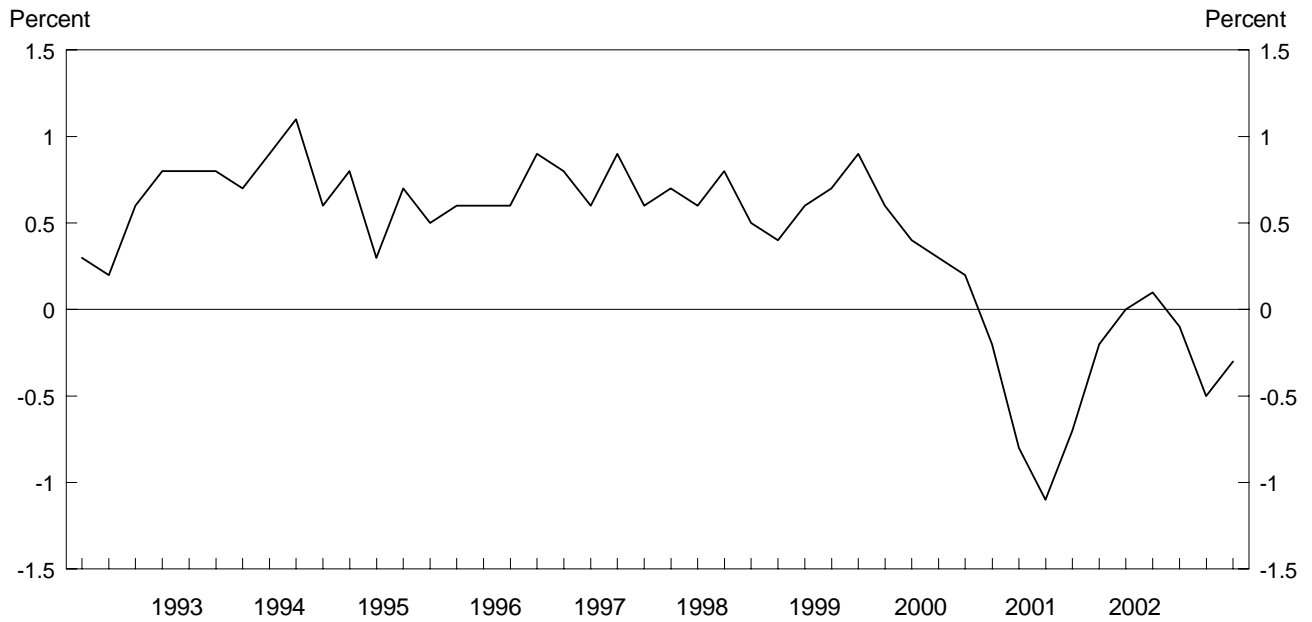
With the official ending of the NBER-dated recession in late 2001, the gross job loss rate decreased considerably and, by early to mid-2002, returned to a rate comparable to its pre-recession rates. The same cannot be said for the gross job gain rate following the recession: in calendar year 2002, the gross job gain rates remained in the range from 7.2 percent to 7.5 percent, substantially lower than the measure's pre-recession rates.

The time series of gross job gain rates at expanding and opening establishments, and gross job loss rates at contracting and closing establishments, are presented in chart 3. Immediately obvious is the previously stated observation that, for any given quarter, expanding and contracting establishments account for most jobs gained and most jobs lost, respectively, measured on a quarterly frequency. This is seen in the fact that the job gain rate for expanding establishments and the job loss rate for contracting establishments are in the neighborhood of roughly 6 percent, whereas the job gain rate for opening establishments and the job loss rate for closing establishments are almost always below 2 percent.

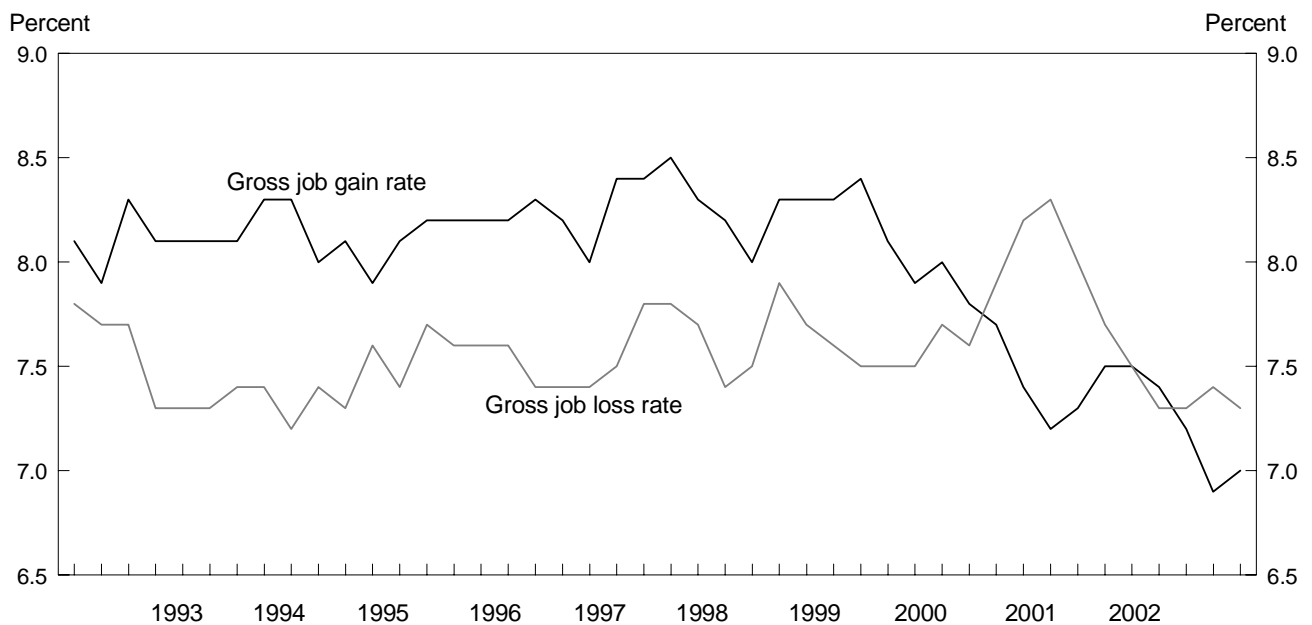
The business cycle is most evident in the expanding and contracting establishments. (See chart 3.) The difference between the gross job gain rate due to expansions and the gross job loss rate due to contractions mirrors the overall difference between the gross job gain rate and the gross job loss rate. The difference between the gross job gain rate due to openings and the gross job loss rate due to closings does exhibit some business cycle properties, but this difference is quite small relative to the

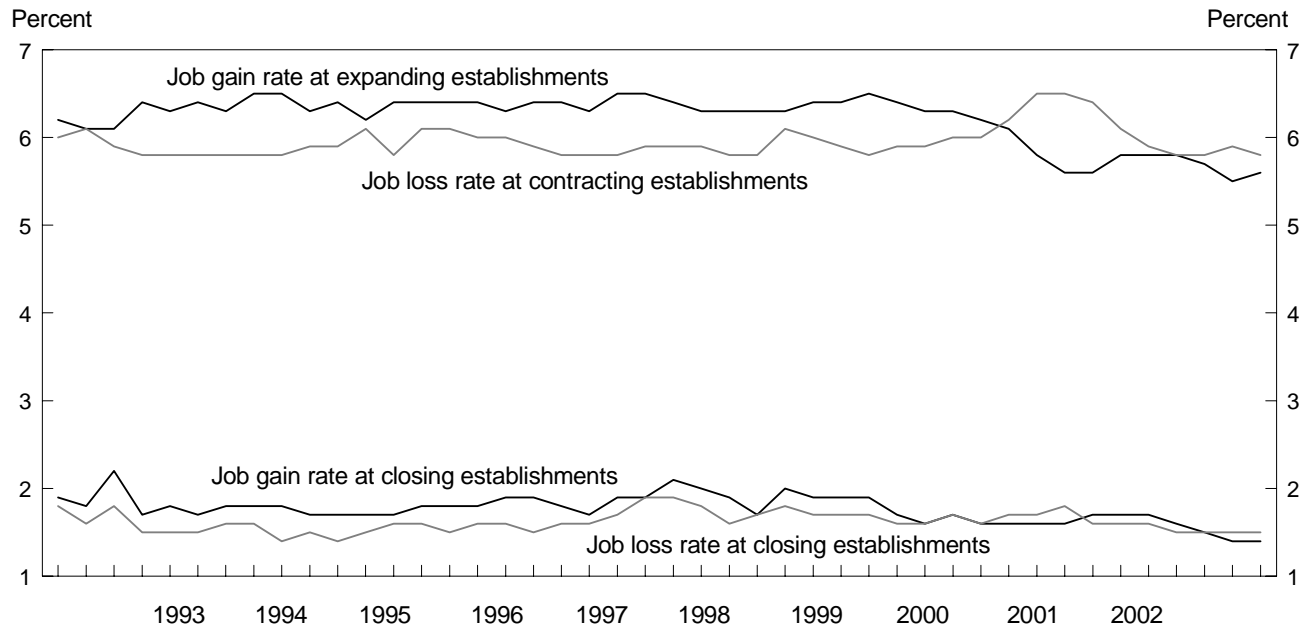


**Chart 1. Net employment growth rate, seasonally adjusted quarterly data, September 1992 to June 2003**



**Chart 2. Gross job gain and loss rates, seasonally adjusted quarterly data, September 1992 to June 2003**



**Chart 3. Gross job gain and loss rates, seasonally adjusted quarterly data, September 1992 to June 2003**

difference between the corresponding rates for expansions and contractions. The time series of net employment growth rates from the net of expanding and contracting establishments, as well as that from the net of opening and closing establishments, is presented in chart 4.

### Discussion of technical issues

*Seasonal adjustment.* Non-seasonally adjusted gross job gain and gross job loss statistics are presented in table 5. These data show large seasonal patterns. The net employment change in the first quarter of the year is consistently negative, with declines of more than 2 million jobs in each of the first quarters of recent years. This first-quarter decline is then consistently followed by a large increase in employment in the second quarter of the year. The first-quarter decline is driven by gross job losses, the second quarter increase by gross job gains. This seasonal pattern is not surprising, given factors such as the weather, temporary hiring for major holidays, and the opening and closing of schools.

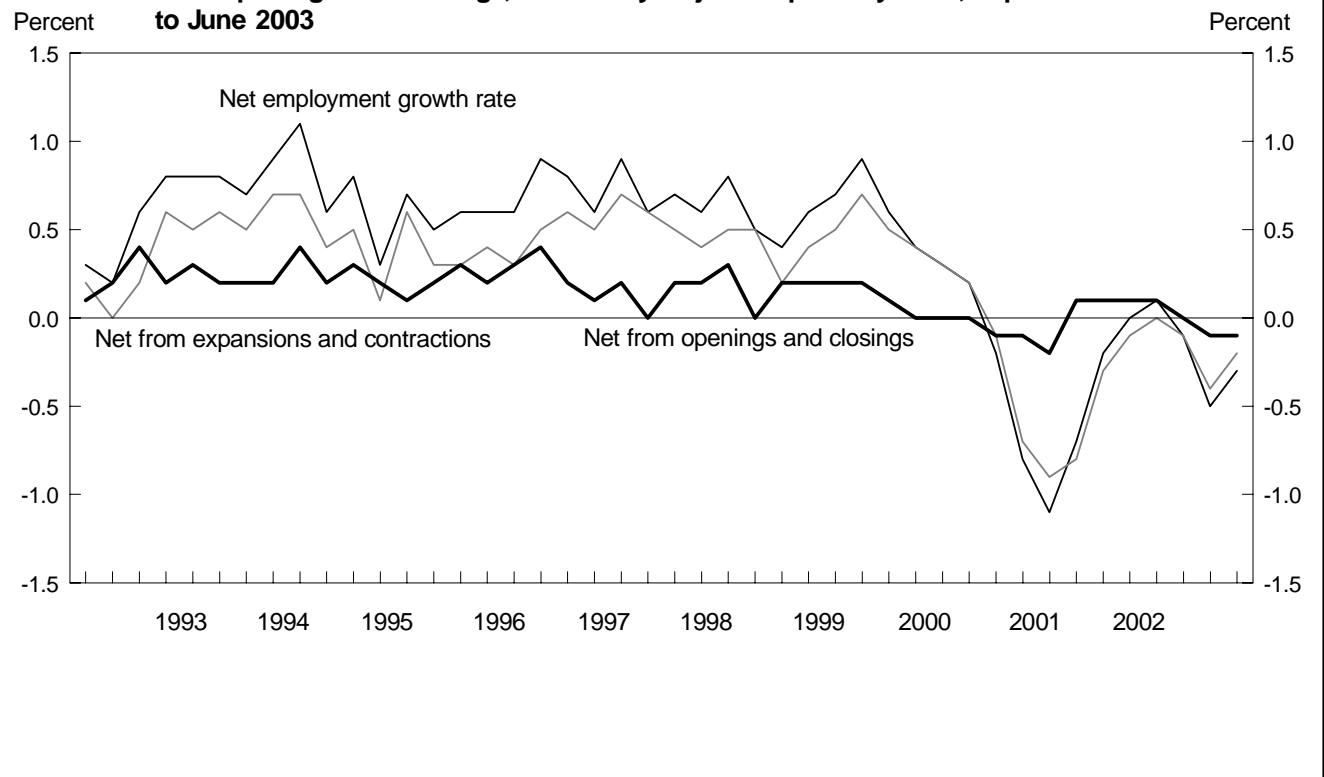
The seasonal patterns in quarterly net employment growth and in the underlying gross job gain and gross job loss statistics follow a more or less regular pattern each year; thus, their influence can be eliminated with standard seasonal adjustment techniques. However, although seasonal adjustment makes

long-term trends and cyclical developments much easier to recognize, seasonally adjusting the business employment dynamics data series introduces complications into the basic definition of the net change in employment as the difference between gross job gains and gross job losses.

In approaching the issue of seasonally adjusting the business employment dynamics data, the Bureau follows the accepted statistical methodology of seasonally adjusting the component series and building up from the underlying publication levels. The time series of jobs gained or lost from opening, expanding, closing, and contracting establishments are independently seasonally adjusted, and the seasonally adjusted net employment change is then computed as the difference between gross jobs gained (seasonally adjusted) and gross jobs lost (seasonally adjusted). The resulting seasonally adjusted time series of net employment change, which is derived by summing the four component series, will differ from the net employment change estimated from seasonally adjusting the employment levels and taking first differences. As a result, in presenting the business employment dynamics data series, the Bureau has chosen not to present employment levels in the seasonally adjusted tables.

*Comparisons with other BLS data series.* The net employment change from the business employment dynamics data series will

**Chart 4. Net employment growth rate, net from expansions and contractions, and net from openings and closings, seasonally adjusted quarterly data, September 1992 to June 2003**



not match the net employment change from the BLS monthly Current Employment Statistics (CES) survey. With a sample size of more than 400,000 business establishments per month covering about one-third of total nonfarm employment, the CES survey provides detailed and timely industry data on employment, hours, and earnings of workers on nonfarm payrolls. The employment estimates from the CES survey are usually the first major economic indicators to be released each month and are widely used by policymakers and the business community.

There are three key reasons that the business employment dynamics data series will not match the CES estimates. First, the CES estimates are based on monthly surveys from a sample of establishments and are available within 2 to 3 weeks of the reference period, whereas the gross job gain and gross job loss statistics are based on a quarterly census of administrative records and are published 8 months after the end of the reference period. Second, the CES survey has a coverage different from that of the business employment dynamics series—excluding the agriculture sector, but including establishments not covered by the UI program, such as railroads and religious organizations. Third, as described in the previous section, computing a seasonally adjusted net employment change from seasonally adjusted component series (openings, expansions, contractions,

and closings) is different from estimating the net employment change from a seasonally adjusted total employment series.

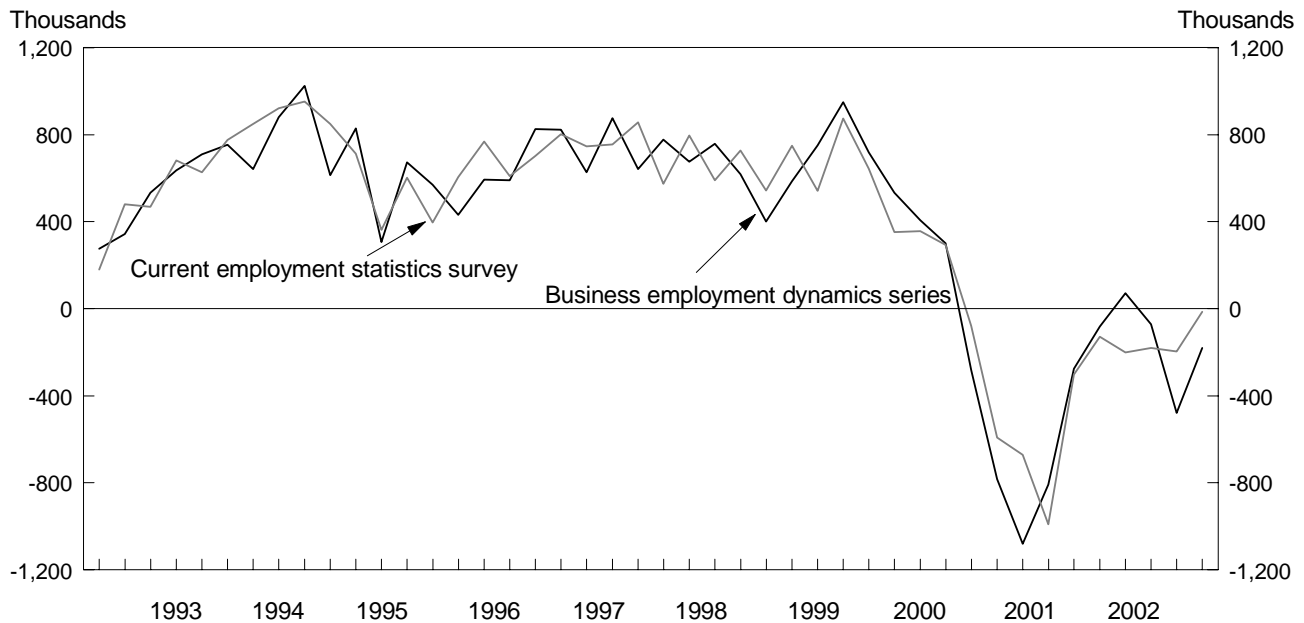
It is wise to be cautious in attempting to compare net employment change statistics from the CES survey with those from the business employment dynamics data series. The intended use of the latter is to show the large gross job flows that underlie the net change in aggregate employment levels. Data users who want timely information or who want to track net changes in aggregate employment levels over time without regard to the underlying gross job gains and gross job loss statistics should refer to the CES data.

Still, although the net employment change statistic from the CES survey and that from the business employment dynamics data series may differ in any specific quarter, the time-series behavior of the seasonally adjusted net employment change from the two series is quite similar. (See chart 5.<sup>4</sup>) This similarity should not be surprising, because the CES survey benchmarks to the QCEW. During the 1990s, the net employment change from the two data series show the same pattern, albeit with differences in any given quarter. Both data series exhibit a substantial decline in net employment growth during 2001, with continued negative net employment growth through calendar year 2002. The two most prominent deviations of the two data series from each other, as seen in chart 5, are the timing of the trough for net employment

**Table 5.** Private-sector gross job gains and job losses, non-seasonally adjusted quarterly data, September 1992 to June 2003

Year and quarter	Employment			Gross job gains			Gross job losses		
	Previous quarter	Current quarter	Net change	Total	Expanding establishments	Opening establishments	Total	Contracting establishments	Closing establishments
1992:									
III .....	90,030,906	90,062,201	31,295	6,694,437	5,185,801	1,508,636	6,663,142	5,253,172	1,409,970
IV .....	90,062,201	90,202,907	140,706	7,016,541	5,546,759	1,469,782	6,875,835	5,572,915	1,302,920
1993:									
I .....	90,202,907	88,530,171	-1,672,736	6,817,100	4,706,266	2,110,834	8,489,836	6,319,158	2,170,678
II .....	88,530,171	91,795,987	3,265,816	8,712,639	6,929,245	1,783,394	5,446,823	4,234,364	1,212,459
III .....	91,795,987	92,207,606	411,619	6,831,071	5,407,537	1,423,534	6,419,452	5,222,709	1,196,743
IV .....	92,207,606	92,787,273	579,667	7,345,315	5,920,848	1,424,467	6,765,648	5,483,227	1,282,421
1994:									
I .....	92,787,273	91,214,492	-1,572,781	6,762,591	5,027,475	1,735,116	8,335,372	6,423,172	1,912,200
II .....	91,214,492	94,820,452	3,605,960	9,243,823	7,237,053	2,006,770	5,637,863	4,354,033	1,283,830
III .....	94,820,452	95,484,367	663,915	7,236,252	5,726,384	1,509,868	6,572,337	5,401,123	1,171,214
IV .....	95,484,367	95,961,088	476,721	7,551,187	6,096,852	1,454,335	7,074,466	5,705,136	1,369,330
1995:									
I .....	95,961,088	94,560,606	-1,400,482	7,132,762	5,326,685	1,806,077	8,533,244	6,718,309	1,814,935
II .....	94,560,606	97,623,447	3,062,841	9,135,720	7,182,433	1,953,287	6,072,879	4,806,987	1,265,892
III .....	97,623,447	97,918,679	295,232	7,238,062	5,786,393	1,451,669	6,942,830	5,581,227	1,361,603
IV .....	97,918,679	98,409,573	490,894	7,912,085	6,370,566	1,541,519	7,421,191	5,990,164	1,431,027
1996:									
I .....	98,409,573	96,530,970	-1,878,603	7,296,438	5,429,595	1,866,843	9,175,041	7,172,656	2,002,385
II .....	96,530,970	99,905,399	3,374,429	9,574,969	7,519,880	2,055,089	6,200,540	4,861,123	1,339,417
III .....	99,905,399	100,039,834	134,435	7,433,502	5,822,305	1,611,197	7,299,067	5,900,582	1,398,485
IV .....	100,039,834	100,848,104	808,270	8,180,473	6,507,956	1,672,517	7,372,203	5,951,339	1,420,864
1997:									
I .....	100,848,104	99,400,380	-1,447,724	7,650,275	5,630,317	2,019,958	9,097,999	6,985,729	2,112,270
II .....	99,400,380	102,741,932	3,341,552	9,576,754	7,564,511	2,012,243	6,235,202	4,875,449	1,359,753
III .....	102,741,932	103,087,995	346,063	7,808,898	6,148,921	1,659,977	7,462,835	5,885,241	1,577,594
IV .....	103,087,995	103,814,819	726,824	8,620,430	6,829,860	1,790,570	7,893,606	6,117,694	1,775,912
1998:									
I .....	103,814,819	102,201,556	-1,613,263	8,203,574	5,819,061	2,384,513	9,816,837	7,247,199	2,569,638
II .....	102,201,556	105,745,572	3,544,016	10,266,444	7,823,083	2,443,361	6,722,428	5,128,625	1,593,803
III .....	105,745,572	105,895,205	149,633	7,741,331	6,045,188	1,696,143	7,591,698	6,049,428	1,542,270
IV .....	105,895,205	106,669,216	774,011	8,473,855	6,872,921	1,600,934	7,699,844	6,108,728	1,591,116
1999:									
I .....	106,669,216	104,637,156	-2,032,060	8,186,652	5,881,407	2,305,245	10,218,712	7,621,358	2,597,354
II .....	104,637,156	108,121,039	3,483,883	10,361,230	8,075,511	2,285,719	6,877,347	5,311,276	1,566,071
III .....	108,121,039	108,182,154	61,115	8,022,495	6,316,593	1,705,902	7,961,380	6,277,917	1,683,463
IV .....	108,182,154	109,278,661	1,096,507	9,031,448	7,207,652	1,823,796	7,934,941	6,298,406	1,636,535
2000:									
I .....	109,278,661	107,672,227	-1,606,434	8,208,752	6,097,257	2,111,495	9,815,186	7,531,814	2,283,372
II .....	107,672,227	111,115,514	3,443,287	10,306,902	8,269,019	2,037,883	6,863,615	5,384,637	1,478,978
III .....	111,115,514	110,783,450	-332,064	7,916,328	6,284,783	1,631,545	8,248,392	6,582,852	1,665,540
IV .....	110,783,450	111,182,910	399,460	8,627,728	6,985,872	1,641,856	8,228,268	6,622,454	1,605,814
2001:									
I .....	111,182,910	108,561,077	-2,621,833	7,880,090	5,924,318	1,955,772	10,501,923	8,018,068	2,483,855
II .....	108,561,077	110,734,261	2,173,184	9,735,188	7,671,463	2,063,725	7,562,004	5,936,261	1,625,743
III .....	110,734,261	109,000,401	-1,733,860	7,040,777	5,519,373	1,521,404	8,774,637	7,023,453	1,751,184
IV .....	109,000,401	108,173,134	-827,267	7,795,254	6,147,166	1,648,088	8,622,521	7,025,677	1,596,844
2002:									
I .....	108,173,134	105,810,039	-2,363,095	7,506,355	5,512,394	1,993,961	9,869,450	7,560,400	2,309,050
II .....	105,810,039	108,514,155	2,704,116	9,511,664	7,462,523	2,049,141	6,807,548	5,316,536	1,491,012
III .....	108,514,155	107,896,027	-618,128	7,058,609	5,604,565	1,454,044	7,676,737	6,222,723	1,454,014
IV .....	107,896,027	107,747,941	-148,086	7,628,881	6,151,289	1,477,592	7,776,967	6,318,024	1,458,943
2003:									
I .....	107,747,941	105,079,625	-2,668,316	6,868,671	5,187,329	1,681,342	9,536,987	7,483,095	2,053,892
II .....	105,079,625	107,615,979	2,536,354	8,984,468	7,229,797	1,754,671	6,448,114	5,093,167	1,354,947

**Chart 5. Net employment growth, business employment dynamics series and current employment statistics survey, seasonally adjusted data, September 1992 to June 2003**



growth during the 2001 recession (the third quarter of 2001 for the business employment dynamics data, compared with the fourth quarter of 2001 for the CES survey) and the pattern of net employment growth following the trough of the recession. With regard to this second observation, it is interesting to note that, despite the different quarterly patterns evident in the chart, the cumulative net employment growth is similar in the two data series: the cumulative net employment growth from the first quarter of 2002 through the second quarter of 2003 in the business employment dynamics data was  $-1,014,000$ , whereas the cumulative net employment growth in the CES survey during the same period was  $-1,020,000$ .

*Openings and closings compared with births and deaths.* The new business employment dynamics data series produced by the Bureau classifies establishments as expanding, contracting, opening, or closing (or not changing their employment level). The definitions of establishment openings and closings differ from definitions of establishment births and deaths. It is not possible to define business deaths on a contemporaneous basis. Businesses in the UI system are allowed to, and often do, report zero employment for several quarters after they have effectively closed. This undoubtedly occurs when a business owner temporarily shuts down, but anticipates starting up the business

again when economic conditions improve. By reporting zero employment and wages on the quarterly contributions form, the business owner can keep his or her UI account active. Reporting zero employment results in many observed business closings, but which of these closings will start up again and which will die is not observed for several more quarters.

Although business deaths cannot be defined contemporaneously, we can define both births and deaths in the historical data. (This research is ongoing at the Bureau.) A business *birth* is defined as an opening establishment that did not have any positive employment during the previous four quarters (thus differentiating seasonal openings from business births). Hence, births are a subset of openings. Likewise, a business death is defined as a closing establishment that does not have positive employment during the subsequent four quarters. Deaths, then, are a subset of closings.

THIS ARTICLE HAS DISCUSSED THE CREATION of a new quarterly data set on business employment dynamics by the Bureau of Labor Statistics. The new data quantify the sizable number of jobs that appear and disappear in the U.S. economy each quarter. The data also show that the 2001 recession is characterized by a decline in gross job gains accompanied by an increase in gross job losses, and the several quarters following the end of the

recession are characterized by a gross job loss rate that returned to prerecession levels and a gross job gain rate that did not return to prerecession levels.

These new gross job gain and gross job loss statistics will help economists, policymakers, and business leaders better understand the labor market and the U.S. economy. The data described represent just the start of a number of new data series flowing from the Business Employment Dynamics program.<sup>5</sup> In addition to publishing the national-level data described herein, the Bureau is preparing further data series at more detailed levels. Plans are in the works to release gross

job gain and gross job loss statistics for industries and geographical regions, although confidentiality restrictions will determine just how much detail will be published. The Bureau also is working on gross job gain and gross job loss data by size class, which will allow the commonly asked question “Who creates the most jobs?” to be answered. The statistics presented in this article are all at the establishment level; the Bureau is working on gross job gain and gross job loss statistics at the firm level as well. Finally, BLS researchers are working on annual gross job gain and gross job loss statistics, and related issues such as business survival rates. □

## Notes

<sup>1</sup> For more details regarding the BLS gross job gain and gross job loss data and the underlying motivation for creating such data, see Timothy Pivetz, Michael Searson, and James Spletzer, “Measuring job and establishment flows with BLS longitudinal microdata,” *Monthly Labor Review*, April 2001, pp. 13–20.

<sup>2</sup> For more details of the BLS linkage methodology, see Kenneth Robertson, Larry Huff, Gordon Mikkelson, Timothy Pivetz, and Alice Winkler, “Improvements in Record Linkage Processes for the Bureau of Labor Statistics’ Business Establishment List,” in *Proceedings for the 1997 Record Linkage Workshop and Exposition* (Washington, DC, National Academies Press, 1999), pp. 212–21.

<sup>3</sup> Two technical notes warrant mention. First, as stated earlier, the 3.1 million establishments with positive employment that do not change their employment across quarters are not counted as expanding, opening, contracting, or closing establishments in table 3. However, they are included in the count of all establishments used as the denominator to calculate the rates in table 4. Second, the definition of “active establishment” excludes the roughly 1 million establishments

with zero employment in both quarters. Businesses in the UI system are allowed to report zero employment on their quarterly tax forms. A common example of a business that would report two consecutive quarters of zero employment is a seasonal business that is open only during several months of the year. Such a business would be counted as an opening establishment in the quarter that it moves from zero to positive employment and a closing establishment in the quarter that it moves from positive to zero employment. An establishment that reports zero employment in both the current and previous quarters is not counted as an active establishment. The preceding definitions, along with several exclusions for scope (such as government and private households), explain why the business employment dynamics data series reports roughly 6.4 million *active establishments* per quarter, whereas the QCEW program reports more than 8 million *establishments* per quarter.

<sup>4</sup> The CES data used in chart 5 are the seasonally adjusted total private series.

<sup>5</sup> For more information, visit the Business Employment Dynamics website at [www.bls.gov/bdm](http://www.bls.gov/bdm).