

COLORADO BUSINESS EMPLOYMENT DYNAMICS DATA

The Bureau of Labor Statistics has recently released a new set of quarterly employment data for all 50 states. The series, known as Business Employment Dynamics (BED), starts in 1992 and currently runs through first quarter 2007. The employment dynamics data are generated from unemployment insurance tax reports submitted each quarter by employers and present job creation and job destruction levels and rates within states. These data provide a quantitative look at gross job flows, an important, but sometimes overlooked aspect of labor market dynamics. Information on job creation and job loss is particularly useful in business cycle analysis. In this article we describe BED data and its uses as well as Colorado specific job flow data.

How do BED data differ from existing employment series? Three fundamental employment series, described briefly in this and the following paragraph, already exist. The first series, Current Employment Statistics (CES), provides monthly estimates of nonagricultural wage and salary employment at the industry sector level. The CES count of nonfarm jobs is based upon a probability-based survey of businesses. The second data set, Local Area Unemployment Statistics (LAUS), provides monthly estimates of resident employment and unemployment by labor market area and is derived from a monthly survey of households. Unlike CES employment, the LAUS estimates include counts of self-employed individuals as well as agricultural and unpaid family workers. These two employment series differ from each other in other notable ways and it is not unusual for movements in the CES and LAUS data to diverge for significant periods of time.

The business employment dynamics data are distinct from these employment series in several important ways. Firstly, BED data are developed from the Quarterly Census of Employment and Wages (QCEW) program, the third main employment series. The QCEW uses data submitted each quarter by employers as part of their unemployment insurance tax reports. These tax records are enhanced by collecting worksite-level detail for most employers, and the improved data represent the universe of employment covered under state unemployment insurance programs. Because the employment dynamics data are drawn from the universe of employer submitted data, they are not subject to the types of sampling error contained in both the LAUS and CES data. Secondly, the BED data relate only to private sector workers. Government employees, as well as private household workers, are excluded from the business dynamics data. In contrast, public sector employees are counted in both the CES and LAUS employment totals. Lastly, and most importantly, BED data produce counts of gross job creation and destruction, not overall employment levels.

Net employment gains derived from CES and LAUS are simply the difference in employment level estimates between two points in time. Neither series, however, can directly provide estimates of the overall number of gross jobs created and destroyed. For example, although Colorado added about 40,000 private nonfarm jobs in 2006, the total number of jobs created and destroyed was many times larger.

Worker flows, job flows and BED methodology. The U.S. labor market exhibits a remarkable degree of fluidity. Each month, a significant number of workers change jobs; leave the labor force due to retirement, health or other reasons; become unemployed; or enter the work force either for the first time or after not working for a substantial period. According to estimates derived from the Current Population Survey, a comprehensive survey of labor force activity within the nation, about 15 million workers or 8 percent of the population age 16 to 64 either changed their labor force status or switched employers each month between 1996 and 2003.¹

While many workers either change jobs or their labor force status each month, employers are also creating or destroying large numbers of jobs. Depending upon data source and methodology, estimates of quarterly job creation rates (number of new jobs as a share of total employment) range from about 3.5 to 8 percent; job destruction rates are estimated to vary from roughly 3 to 7.5 percent.²

The concepts of job creation and job loss, as well as worker flow, are illustrated by the following example. Consider a labor market with two employers. The first employer has 10 employees on its payroll at the beginning of the year and 15 at the end of the year. The employer hires seven workers during the year but has two persons leave for a variety of reasons. The second employer starts the year with 25 workers and ends the year with 20. This employer hires three persons throughout the year but eight separate from employment, either voluntarily or involuntarily.

In this case, although the net number of new jobs added equaled zero, five jobs were actually created during the year and five jobs were destroyed. From the perspective of measuring worker flows, however, ten hires and ten separations each occurred.³

The BED data relate to job flows and are developed in the following way. Employers submit their monthly payroll counts each quarter as part of their unemployment insurance tax reports. The difference between employment numbers for two consecutive quarters, using the third month of each quarter as the reference month, is calculated for each establishment. The number of jobs created is the sum of all the individual positive changes while overall job losses are the aggregate of all negative changes. The net job change for the quarter equals the difference between total gains and total losses.

The BED data further divide job gains and job losses into those from existing establishments and those from new or closing establishments. Existing establishments are those which report some employment during the reference month for two consecutive quarters. If the difference between the two quarters is positive, the establishment is

¹ Cited in Davis, Steven J.; Faberman, R. Jason and Haltiwanger, John. "The Flow Approach to Labor Markets: New Data Sources and Micro-Macro Links." *Journal of Economic Perspectives*, Vol. 20, Number 3, Summer 2006, page 10. The article provides an excellent overview of job and worker flow analysis and interpretation.

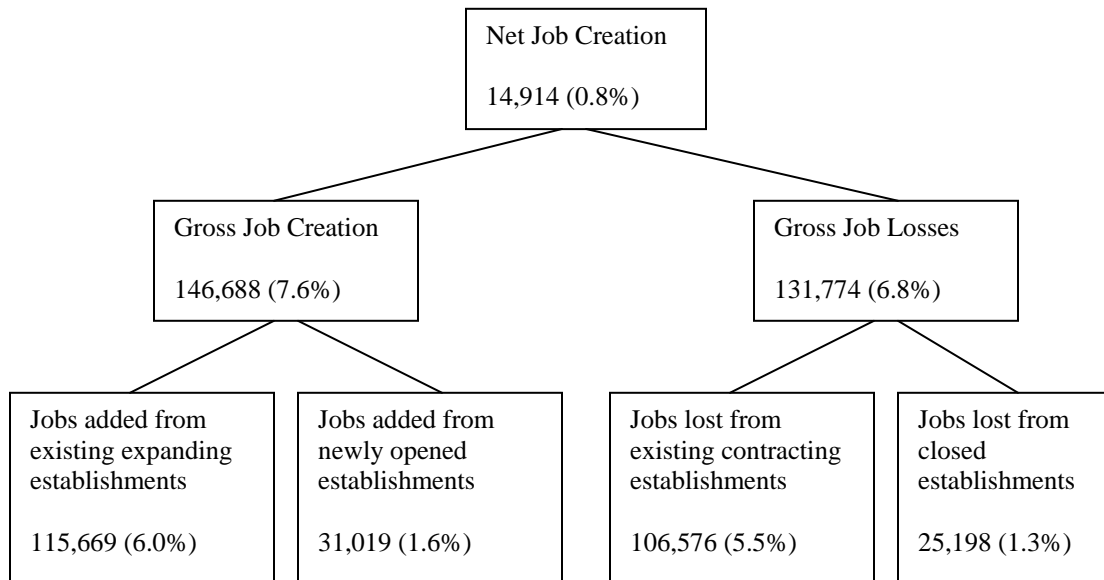
² Ob. cit., Table 1, p. 6.

³ Some types of worker flow measurements, such as turnover and replacement rates, are available from Job Openings and Labor Turnover Survey (JOLTS) data and the Longitudinal Employment Household Dynamics (LEHD) data.

classified as an expanding establishment; if negative, the establishment is defined as a contracting establishment. New establishments are considered to be those showing some employment in one quarter and zero the prior quarter; closed establishments report employment in one quarter and no workers the next quarter.⁴

BED also permits the job creation and destruction data to be tabulated by the number of businesses reporting gains and losses. As before, the number of units can be subdivided into existing expanding establishments, existing contracting establishments, newly opened establishments, and closed establishments.

Understanding Colorado BED data. To illustrate how the business employment dynamics data work we consider recently released Colorado data for the quarter ending March 2007. In that quarter, 146,688 private jobs were created from both existing establishments that added workers as well as new firms. Expanding establishments accounted for 115,669 of these new jobs while 31,019 jobs were created by businesses that opened during the quarter. During the same period, a total of 131,774 jobs were destroyed—106,576 jobs cut from existing businesses and 25,198 lost from closing establishments. The difference between total jobs created and total jobs lost, 14,914, is the net number of private jobs added during the quarter. These relationships are shown schematically in the diagram below.



⁴ Although new establishments either did not file a tax report in the previous quarter or reported zero employment in the third month of the prior quarter it does not mean the business did not exist before that time. The establishment may have been temporarily closed or had workers in a month other than the reference month. Similarly, the BED definition of closed establishment does not mean the firm is out of business since the lack of employment may be temporary. For these reasons, the definitions of new and closed establishments for BED differ from those of business births and deaths.

It is often more useful to express the job creation and loss data as a percent of total employment. This allows the relative impacts of job creation and destruction to be seen more clearly, thus facilitating analysis. Expressing job flow data as rates also makes possible comparisons with other states and the nation.

The 146,688 private sector jobs that were created during first quarter 2007 represented 7.6 percent of total private employment while the number of jobs destroyed, 131,774, was 6.8 percent of employment. The 14,914 net rise in private jobs was 0.8 percent of total private payrolls. Roughly speaking, this means between January and March 2007 one private sector job was created for each 13 existing jobs while a job was lost for every 14 existing jobs. Rates are shown in parentheses in the diagram.

The same data can also be viewed from the perspective of the number of Colorado establishments adding and releasing workers. Between January and March 2007, 41,194 existing firms expanded payrolls while 30,478 businesses cut jobs. More establishments closed, however, than opened in the quarter—8,965 establishments opened while 9,553 closed, resulting in a net loss in the number of establishments.

The 41,194 expanding establishments accounted for 22.2 percent of private Colorado establishments while the 30,478 contracting firms represented 21.0 percent of private firms. Newly opened firms were 6.2 percent of all private establishments while closing firms made up 6.6 percent of the total.

Using BED to examine Colorado business cycles. The BED data can be particularly valuable in evaluating the relative strength and timing of economic cycles. In general, during economic expansions existing firms hire additional workers in response to increased demand for goods and services. At the same time, the number of new businesses grows, increasing the number of jobs resulting from newly opened establishments. For the same reason, the count of establishments adding workers increases—more firms add jobs than destroy them, and more businesses open than close. The opposite occurs during economic downturns when existing businesses cut more jobs than create new ones and fewer businesses open than close.

Figures 1 through 8 show Colorado quarterly private job creation and destruction totals and rates, as well as the number and rates of establishments adding and cutting jobs, from 1992 forward. This period can be meaningfully divided into three parts: strong growth (1992-2000); recession (2001-2003); and post-recession (2004-present). Average rates for these three phases are summarized in the following tables.

During the strong growth years 1992 to 2000, existing private sector Colorado businesses created jobs at a 7.3 percent quarterly rate (i.e., firms already in business added more than 7 new jobs for each existing 100 jobs). Concomitantly, existing establishments cut jobs at a 6.7 percent rate. Newly opening businesses added jobs at a 2.0 percent rate while closing establishments destroyed jobs at a 1.4 percent rate. The average rate of gross job creation, 9.3 percent, far exceeded the 8.1 total rate of job destruction. As a result, net

job creation averaged 1.2 percent per quarter throughout these expansionary years (see table below).

Average Quarterly Colorado Job Creation/Destruction Rates

	Net Change	Total Gain	Expanding Gain	Opening Gain	Total Loss	Contracting Loss	Closing Loss
Long-term 1992-present	0.7	8.6	6.8	1.8	7.9	6.5	1.4
Pre-recession 1992-2000	1.2	9.3	7.3	2.0	8.1	6.7	1.4
Recession 2001-2003	-0.6	7.8	6.2	1.6	8.4	6.9	1.5
Post-recession 2004-present	0.6	7.8	6.2	1.6	7.2	5.8	1.4

Rates shown as a percent of employment

Contrast these rates to those for the recession and post-recession periods. For both intervals, job creation rates from expanding and new firms are identical—6.2 and 1.6 percent, respectively. However, the 8.4 percent job destruction rate from 2001 to 2003 was much greater than the job loss rate of 7.2 percent that has occurred since 2004. Furthermore, BED reveals that the higher job destruction rate during the recession was almost entirely attributable to job cuts at existing firms rather than job losses from closing establishments. The business dynamics data therefore illuminate a critical difference between Colorado’s recession and recovery periods: Colorado’s recovery resulted entirely from a lower rate of job destruction by employers rather than a higher rate of job creation.

The BED numbers can also shed light on other aspects of labor force activity. For example, while the rate of quarterly net job gains from 1992 to 2000 was twice that of the post-recession years (1.2 percent vs. 0.6 percent) the rate of job destruction was also much higher during the strong growth years (8.1 percent vs. 7.2 percent). The reason net job gains were much greater during the 1990s than the past several years is because the gross number of jobs created by expanding and new businesses was much larger, not because fewer jobs were cut by existing firms. .

We can thus characterize the three distinct phases between 1992 and 2007 in the following way: a high growth period with high rates of both job creation and job destruction; a recession marked by a modest rate of job creation along with a high rate of job cuts; and a restrained recovery with a moderate rate of job creation but a relatively low rate of job destruction. The reasons that Colorado job creation rates have decreased significantly since 2000 are not obvious although the same trend has been noted nationally.⁵ What the BED data do make clear, however, is that high rates of job destruction are not incompatible with robust economic growth.

⁵ One explanation is the adoption of more flexible hiring practices by businesses in an effort to reduce costs. For a good discussion of just-in-time employment practices and their labor market impacts see Stacey Schreft and Aarti Singh, “A Closer Look at Jobless Recoveries.” Federal Reserve Bank of Kansas City Economic Review, Second Quarter 2003, pp. 45-73.

Typically, more Colorado firms add workers than cut payrolls; the BED data allow us to quantify that rule. Between 1992 and 2000, 31.4 percent of Colorado establishments created jobs each quarter while 28.5 percent cut jobs. During the economic downturn, however, slightly more establishments destroyed jobs than created jobs. While the post-recession recovery phase has seen a return to a net positive number of businesses creating jobs, the percentage of firms adding jobs is half that of the high growth period (see table below).

Average Quarterly Percentage Private Colorado Establishments Adding/Losing Jobs

	Net Change	Total Gainers	Expanding Gainers	Opening Gainers	Total Losers	Contracting Losers	Closing Losers
Long-term 1992-present	1.8	30.2	24.0	6.2	28.4	22.9	5.5
Pre-recession 1992-2000	2.9	31.4	25.3	6.1	28.5	23.3	5.2
Recession 2001-2003	-0.8	28.5	22.3	6.2	29.3	23.4	5.9
Post-recession 2004-present	1.4	28.6	22.2	6.4	27.2	21.4	5.8

Rates are percent of total establishments

The percentage of Colorado businesses adding jobs has been virtually identical throughout the recession and subsequent recovery years (22.3 percent vs. 22.2 percent). A significantly greater proportion of establishments reduced staffing levels during the recession, most of which were existing businesses. The share of existing establishments destroying jobs during the high growth interval matched that of the recession (23.3 percent vs. 23.4 percent). During the recession, however, a bigger fraction of firms lost jobs due to closings.

Summary. Although several employment series supply information on net job growth, by focusing upon gross job creation and destruction, the business employment data deepen our understanding of an important element of labor market dynamics. The BED data make clear that, at least since 1992, high rates of job churning have been an integral part of both up and down economic cycles in Colorado.

The employment dynamics statistics demonstrate that high rates of job destruction can go hand-in-hand with vigorous economic expansion. Throughout the fast-paced growth of the 1990s Colorado employers both added workers and eliminated jobs at a high rate. While job destruction has declined during the modest recovery of the past three years, job creation has also slowed and remains the same as that prevailing during Colorado's contraction. Whether the lower levels of job creation observed since 2000 represent a secular shift still remains to be seen.

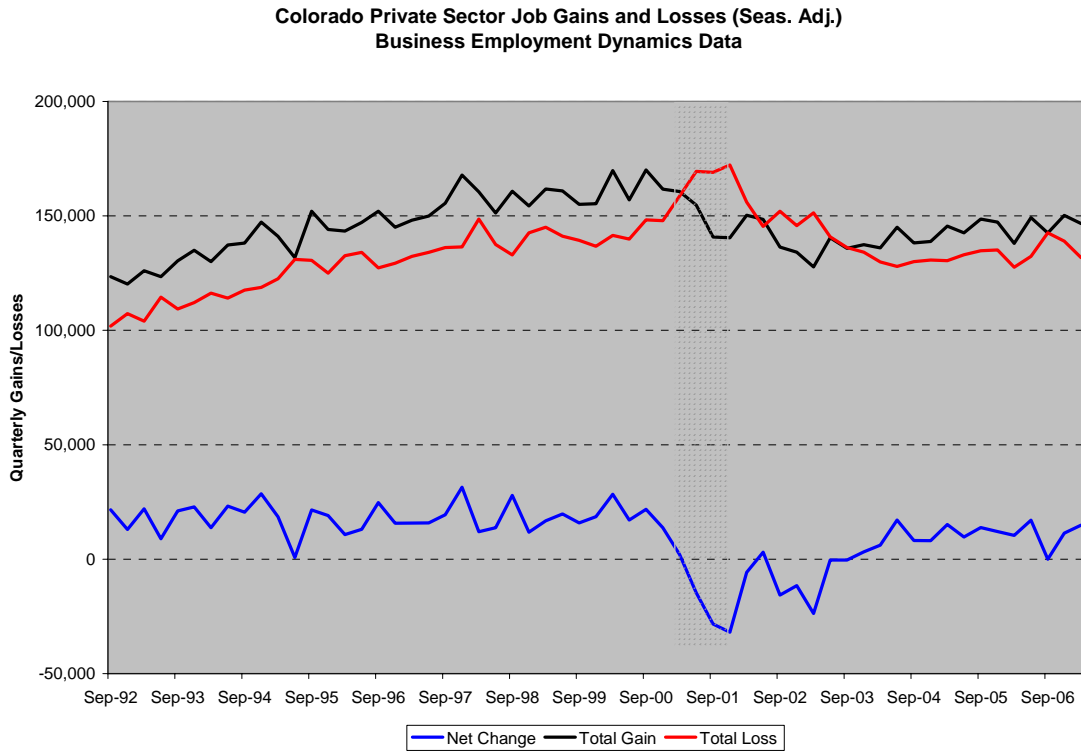


Figure 1. Shaded area is U.S. recession

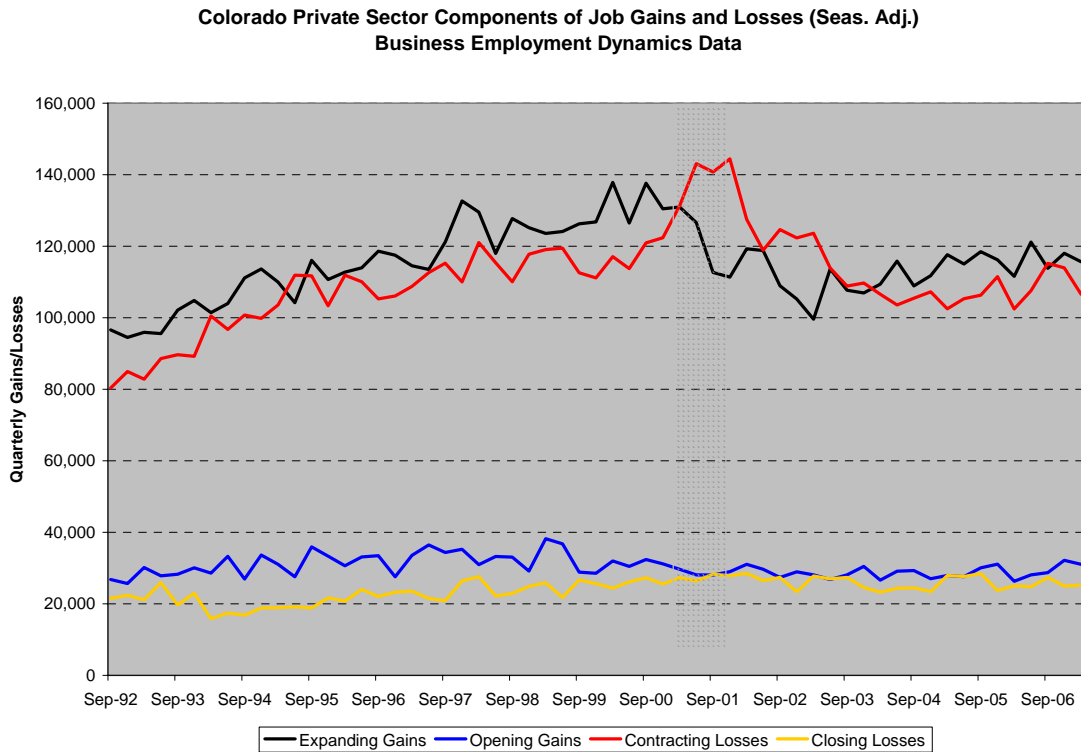


Figure 2. Shaded area is U.S. recession

**Colorado Private Sector Job Gains and Losses as a Percent of Employment (Seas. Adj.)
Business Employment Dynamics Data**

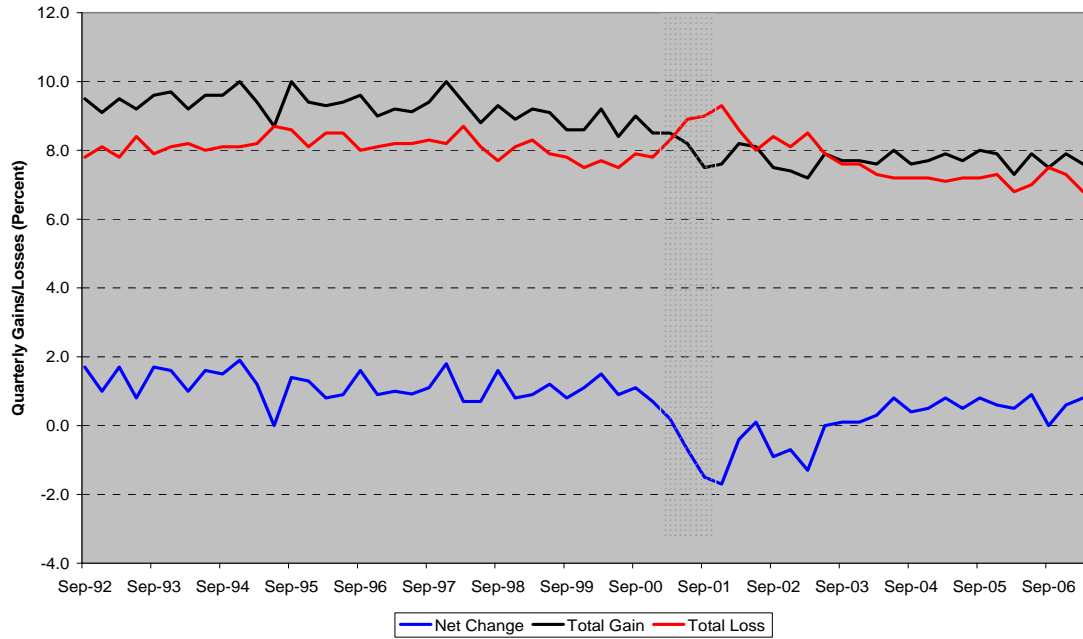


Figure 3. Shaded area is U.S. recession.

**Colorado Private Sector Components of Job Gains and Losses as a Percent of Employment (Seas. Adj.)
Business Employment Dynamics Data**

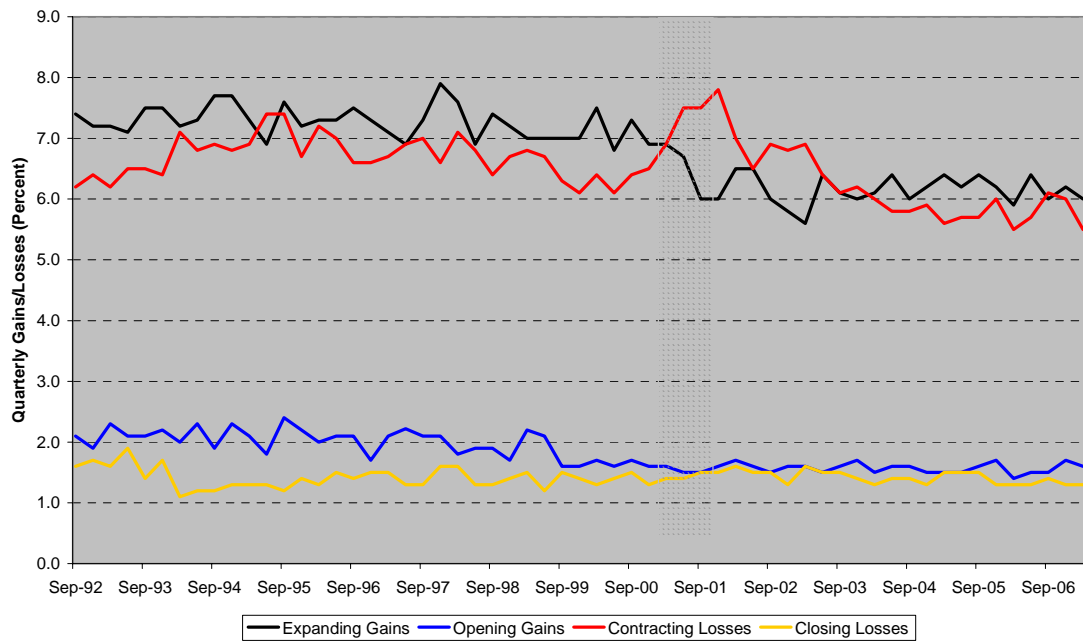


Figure 4. Shaded area is U.S. recession.

**Number of Colorado Private Sector Establishments with Job Gains and Losses (Seas. Adj.)
Business Employment Dynamics Data**

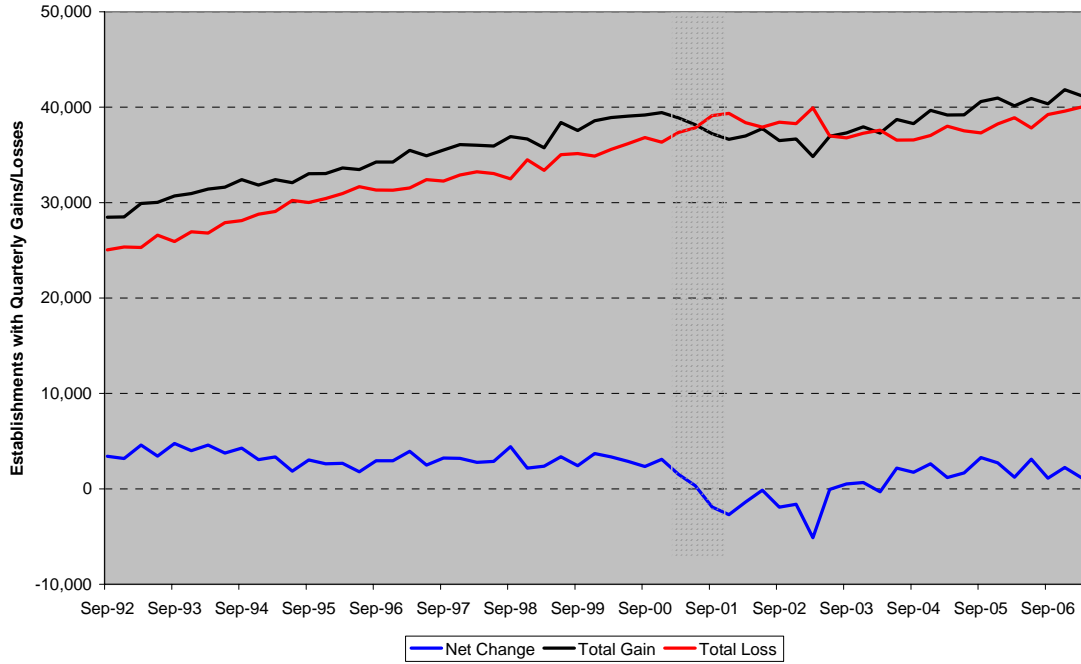


Figure 5. Shaded area is U.S. recession.

**Number of Colorado Private Sector Establishments with Job Gains and Losses (Seas. Adj.)
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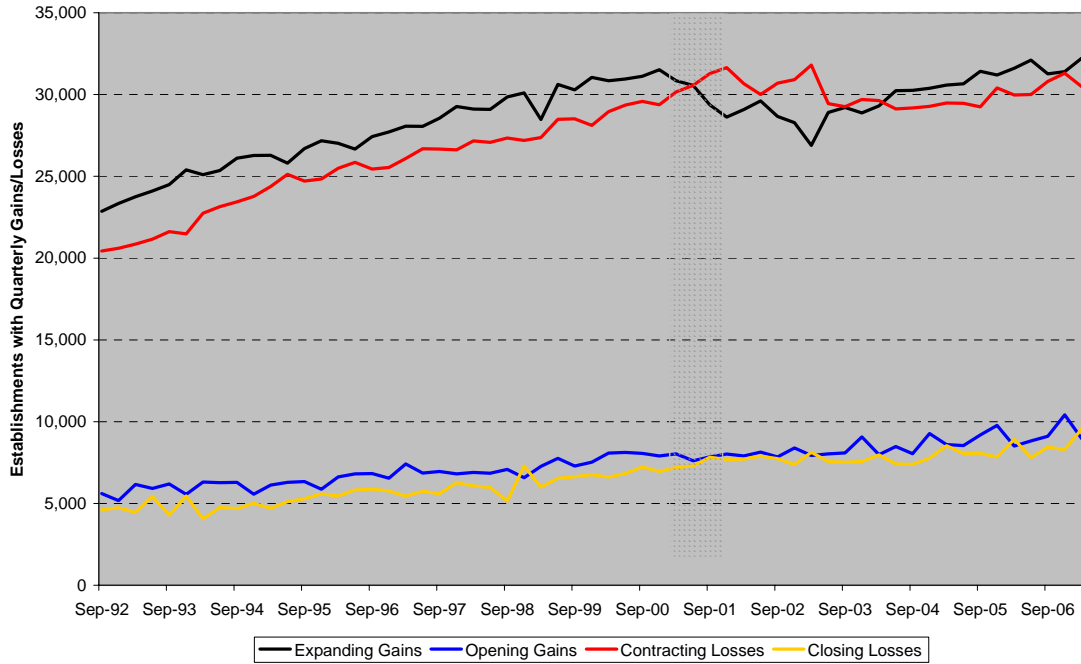


Figure 6. Shaded area is U.S. recession.

Share of Colorado Private Sector Establishments with Job Gains and Job Losses (Seas. Adj.)
Business Employment Dynamics Data

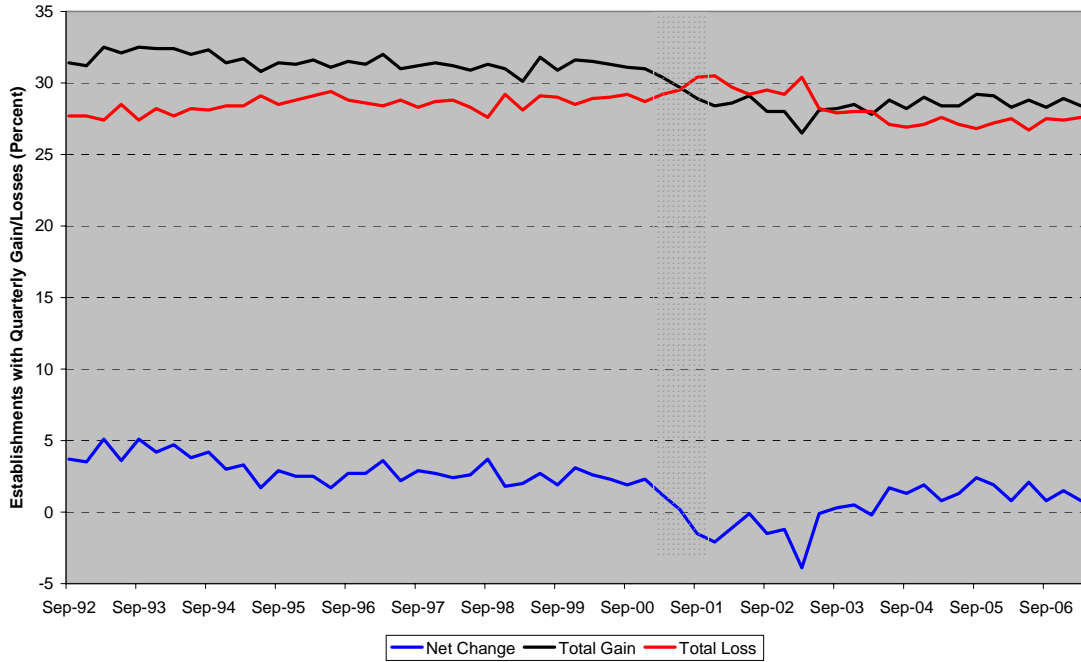


Figure 7. Shaded area is U.S. recession.

Share of Colorado Private Sector Establishments with Job Gains and Job Losses (Seas. Adj.)
Business Employment Dynamics Data

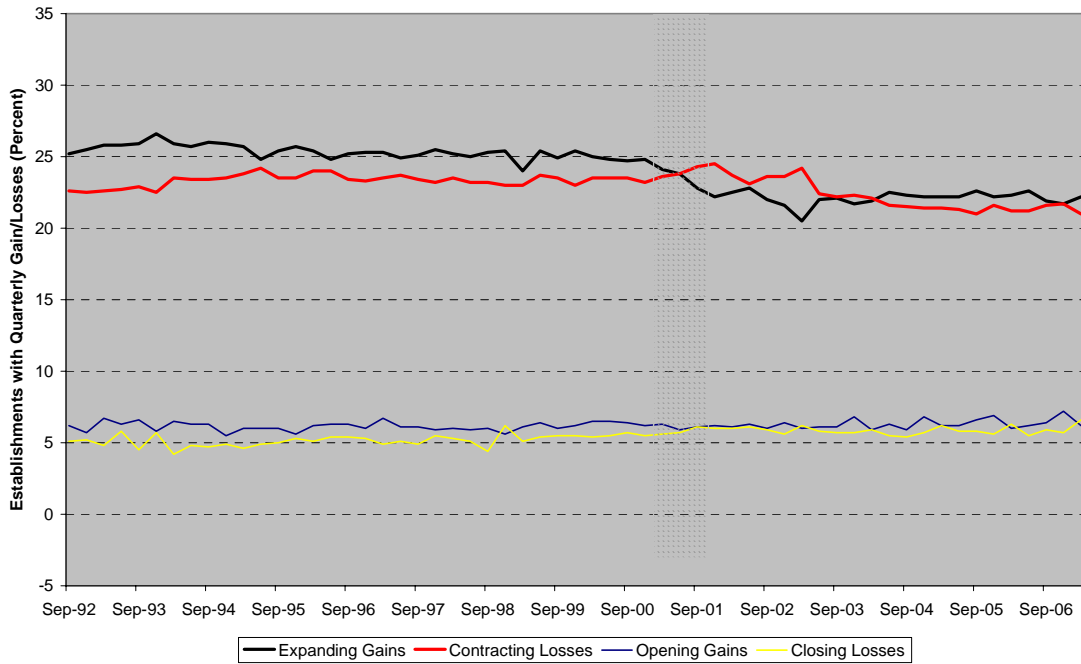


Figure 8. Shaded area is U.S. recession.