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# Sources of Employment Change in the Tenth District

By David S. Kraybill

Creating jobs is often the primary goal of economic development policy. To help target their job creation efforts, policymakers generally examine *net* changes in the official employment figures. But relying solely on net changes can often hide important gross changes that influence the dynamics of job creation and destruction. Knowing where jobs are currently being created and destroyed in an economy can help policymakers design and target their economic development efforts.

Net employment changes can be traced to four gross components of job creation and job loss. The four components are (1) jobs created at new businesses, (2) jobs created at existing businesses, (3) jobs destroyed at existing businesses that remain open, and (4) jobs destroyed at existing businesses that close. The net employment changes routinely reported in the press are the result of subtracting the jobs lost, when existing businesses shrink or close, from the jobs created, when new business open or existing businesses expand. Consequently, small net employment changes can be produced by large, but offsetting, changes in the gross components.

What is the relative importance of each of these four components of gross job change in the Tenth District? The first section uses U.S. Bureau of the Census statistics to show how each of the four gross components performed in the district from 1989 to 1991—the only years for which data are available for all industries. The second section examines the four components of a single industry—manufacturing—over a longer time period, 1972 to 1988. The article concludes that expansions and contractions at existing businesses are driving forces behind employment change in the district, but openings of new businesses can help keep net job growth positive.

## *HOW IMPORTANT ARE THE GROSS JOB COMPONENTS?*

While the district added about 240,000 new jobs on net from 1989 to 1991, the gross job figures tell a more turbulent story. In fact, 2 million new jobs were added in the district over the three years, and 1.8 million existing jobs were lost (Table 1). Missouri is a striking example of how dramatically net job changes can hide a much bigger fluctuation in the overall job market. Of the seven district states, Missouri had the smallest net change in employment from 1989 to 1991, adding just 8,500 new jobs. In reality, however, the state created 593,000 new jobs and lost 585,000 existing jobs. To see how net figures can hide such a flow of job creation and destruction, it is necessary to examine the gross components.

### *Gross job changes by component*

Historically, *gross* employment data for all sectors of the economy have not been available. The most widely available employment data, which are commonly reported in the press, is derived from surveys of payroll employment. These data, released by the U.S. Bureau of Labor Statistics, provide a snapshot of the level of employment each month or year. Comparing payroll employment from one period to another gives a measure of *net* employment change. But recently, the U.S. Bureau of the Census released its Standard Statistical Establishment List (SSEL), a data set based on an annual census of nearly 100 percent of establishments in all industries in the United States. This data set provides the gross figures needed to understand the dynamics of net job growth.

On net, the district added 240,000 jobs from 1989 to 1991, representing a growth rate of 2.0

Table 1

**Gross and Net Job Change by Establishment Type**

Tenth District, 1989-91

	Job creation	Job destruction	Net job change
District	2,054,588	(1,814,326)	240,262
Colorado	469,748	(397,825)	71,923
Kansas	282,544	(254,427)	28,117
Missouri	593,060	(584,505)	8,555
Nebraska	175,176	(135,171)	40,005
New Mexico	158,914	(132,835)	26,079
Oklahoma	326,923	(271,445)	55,478
Wyoming	48,223	(38,118)	10,05

percent. The greatest single contributor to net job growth was *expansions* of existing businesses, which boosted employment 12.8 percent over the three years (Table 2). *Contractions* of existing businesses offset many of these gains, shrinking job rolls by 9.6 percent. *Closings* of existing businesses further offset the jobs created by expansions, losing jobs at a 5.1 percent rate. The smallest influence on net job growth was *openings* of new businesses, which added jobs at a 3.9 percent rate.

*Gross job changes in Tenth District states*

What has been the behavior of the gross job components in individual district states? Despite being the smallest gross component of net job growth, business openings helped keep net growth positive in five of the seven states of the district over the three-year period. Even in Missouri, where so many existing jobs were lost, business openings helped push net employment growth above the break-even level (Table 2).

While expansions at existing businesses was the strongest component of net job growth in the district, existing businesses on net lost more jobs than they created. This net loss occurred because job losses by closings and contractions more than offset jobs created by expansions in five of the district's seven states. Only in Nebraska and

Wyoming did existing businesses create more jobs than they lost.

*Gross job changes in the district's major industries*

The pattern of existing businesses losing more jobs than they created also held for nearly all of the district's major industries (Table 3). The biggest net losers of jobs at existing businesses over the three-year period were manufacturing, finance, and retail trade. Only in the services sector were more jobs created than lost by existing businesses.

Similarly, the pattern of business openings boosting job growth above break-even levels held for most industries. Services, retail, and finance added the most jobs through business openings. Only in manufacturing, where existing businesses lost 78,400 jobs, were business openings unable to keep net job growth above the break-even level.

**DO THE GROSS JOB COMPONENTS SHIFT OVER TIME?**

From 1989 to 1991, expansions of existing businesses were the most important component of job growth in the Tenth District. This result is somewhat surprising given that the period included a national economic recession. To see if this result

Table 2  
**Average Annual Employment Change by Component**  
 1989-91 (percent)

	New establishments	Existing establishments			All establishments
	Openings	Expansions	Contractions	Closings	Net
District	3.9	12.8	-9.6	-5.1	2.0
Colorado	4.9	14.2	-9.8	-6.3	2.9
Kansas	3.9	12.2	-9.5	-5.0	1.6
Missouri	3.4	11.4	-10.0	-4.7	.2
Nebraska	2.9	12.3	-8.2	-3.5	3.5
New Mexico	4.5	14.9	-10.4	-5.8	3.2
Oklahoma	4.1	13.5	-9.2	-5.5	3.0
Wyoming	3.3	15.4	-9.9	-4.9	3.9

Note: Changes are percentage of beginning-of-year total district or state employment

holds in other periods, it is necessary to examine job growth over several business cycles. While gross employment data for all of the industries in the Tenth District are not available, national data are available for the manufacturing sector from 1972 to 1988.<sup>1</sup> This time frame includes three recessions and thus permits a thorough examination of the gross employment components over several business cycles.<sup>2</sup>

There are several ways to examine the variations in the gross components of employment over the business cycle. One way is to look at the relative contribution of each gross component to

net employment change in each of several years. A second way is to determine how each gross component behaves during recessions and expansions. A third way is to assess the role of existing businesses in job formation over the business cycle. Each of these examinations may be helpful to policymakers seeking to enhance job growth in their state or community.

### *The changing importance of gross job components over the business cycle*

Large fluctuations in expansion and contraction rates suggest the finding in the previous section—that expansions dominated contractions from 1989 to 1991—is not necessarily true of other time periods. As in the 1989-91 period, expansions and contractions at existing businesses exerted the strongest influences on overall employment change from 1972 to 1988. A clear pattern over the business cycle is not evident, but the relative importance of expansions and contractions reverse frequently in the manufacturing sector. Moreover, the patterns observed over decade-long periods are striking (Table 4). In the 1970s, business expansions accounted for the greatest share of employment changes in

<sup>1</sup> The data used in this section are from the Longitudinal Research Datafile (LRD), an establishment-level data set available for 1972-88. The LRD was prepared by the U.S. Census Bureau from the Census of Manufacturers and the Annual Survey of Manufacturers. The time period for which the LRD is available includes three recessions (1973-3 through 1974-4; 1980-1 through 1980-2; 1981-2 through 1982-4). The data are for the entire United States.

<sup>2</sup> Broad conclusions about the behavior of gross employment components over the business cycle are difficult to make because manufacturing employment experienced a nationwide decline during this period. Still, the manufacturing data can be used to detect shifts in the importance of gross employment components for an important industry. And while the information is not specific to the Tenth District, it provides convincing evidence that the relative importance of gross employment components of job creation can shift dramatically over time.

Table 3  
**Net Job Change in Existing, New, and All Establishments**  
 Tenth District, 1989-91

	Existing Establishments	New Establishments	All Establishments
	Net Job Change	Job Creation	Net Job Change
Total	(240,400)	480,662	240,262
Agricultural Services	(D)	(D)	(D)
Mining	(D)	(D)	(D)
Construction	(8,369)	21,145	12,776
Manufacturing	(76,407)	59,466	(16,941)
Transportation	(34,689)	38,306	3,617
Wholesale	(15,603)	25,899	10,296
Retail	(56,089)	101,331	45,242
Finance	(63,424)	77,554	14,130
Services	21,183	139,760	160,943
Unclassified	(D)	(D)	(D)

Note: (D) indicates suppression of data by U.S. Census due to small number of establishments in this category.

the national economy, during both recessions and expansions. In contrast, business contractions accounted for the greatest share of changes in the 1980s, even during most years of overall economic expansion.<sup>3</sup>

Viewed over the longer time period, other gross components of employment change remained less important than expansions or contractions of existing businesses. Closings remained the third most important component, and openings remain the least important component of gross employment change throughout the business cycle.

<sup>3</sup> In addition to influencing the level of net employment disproportionately during recessions, contractions have the largest effect on the variability of net manufacturing employment over the entire business cycle. While the mean rate of both contractions and expansions is 7.8 percent of previous-year employment, the peak rate of contractions is 13.8 percent (during the 1974-75 recessionary period) as compared to a peak rate of 11.9 percent (1984) for expansions. Several other measures of variability, including the standard deviation and the correlation of each component with net employment change, provide additional evidence that contractions vary more than the other components of gross employment change. In a related finding from the LRD data base, Davis, Haltiwanger, and Schuh concluded that job destruction (due to contractions plus closings) varies more than job creation (due to expansions plus openings) over the business cycle.

### *The behavior of gross job components during recessions and expansions*

Another way to examine the variation in gross job components over the business cycle is to determine whether each component increases or decreases during recessions and expansions.<sup>4</sup> For example, business expansions are procyclical. That is, business expansions increase during economic expansions and decrease during recessions. Contractions and closings are also procyclical, implying that gross job losses diminish during economic expansions and increase during recessions.<sup>5</sup> Openings, on the other hand, are countercyclical, a conclusion also reached by Dunne, Roberts, and

<sup>4</sup> This analysis of the cyclicity of the components of gross employment change is based on coefficients of correlation between net employment change and each of the components. The correlation coefficients are as follows: openings (-0.17); expansions (0.95); contractions (0.97); closings (0.57). In the data on which the correlation analysis is performed, opening and expansion rates have positive signs, while contraction and closing rates have negative signs.

<sup>5</sup> Precise definitions are important in the analysis of cyclicity. Contractions and closings are defined here as negative rates of employment change since they reduce employment. The procyclicality of

Table 4

**Average Annual Employment Change by Component, Manufacturing**

United States, 1973-88 (percent change)

Year	New establishments	Existing establishments			All manufacturing establishments	
	Openings	Expansions	Contractions	Closings	Net	Net
1973 - recession	1.4	10.6	-4.4	-1.8	4.3	5.8
1974 - recession	1.1	7.9	-7.1	-2.2	-1.5	-.3
1975	1.5	4.7	-13.8	-2.8	-11.9	-10.3
1976	1.6	9.7	-6.9	-2.6	.2	1.8
1977	2.0	9.0	-6.0	-2.7	.3	2.3
1978	1.4	9.6	-5.4	-2.1	2.1	3.6
1979	1.1	9.3	-5.2	-1.9	2.3	3.3
1980 - recession	.7	7.5	-8.0	-1.2	-1.7	-1.1
1981 - recession	.6	5.8	-9.6	-1.9	-5.7	-5.0
1982 - recession	1.6	5.3	-11.4	-3.3	-9.3	-7.7
1983	2.3	6.3	-11.3	-4.4	-9.4	-7.1
1984	1.4	11.9	-5.5	-2.1	4.3	5.7
1985	1.2	6.8	-8.5	-2.8	-4.5	-3.3
1986	2.0	6.0	-8.9	-3.3	-6.2	-4.2
1987	2.1	6.4	-7.4	-2.9	-3.9	-1.8
1988	1.0	7.6	-6.2	-2.4	-.9	.1
Minimum	.6	4.7	-13.8	-4.4	-11.9	-10.3
Maximum	2.3	11.9	-4.4	-1.2	4.3	5.8
Range	1.7	7.2	9.4	3.2	16.2	16.1
Mean	1.4	7.8	-7.8	-2.5	-2.6	-1.1
Standard Deviation	.5	2.0	2.5	.7	4.8	4.7

Note: Shading indicates the component that contributes most to gross employment change in each year. A box indicates positive net change in employment in existing manufacturing establishments.

Samuelson in their analysis of Census of Manufacturers data for the U.S. over the 1977-82 period. While the countercyclical movement of openings is not well understood, potential entrepreneurs laid off during recessions may respond by launching small businesses, or new businesses may generally find hiring workers easier when unemployment rises during recessions.

contractions and closings implies that the numerical value of these gross employment components increases during expansionary periods, though the absolute value of the rates declines. For example, the rate of contractions may increase from -9.0 percent to -6.0 percent during an expansion.

### *The role of existing businesses in job creation over the business cycle*

Because job creation is often the focus of state and local economic development policy, another useful way to examine the variation in gross job components over the business cycle is to assess the role of existing businesses in job creation. Existing businesses remain the most important source of new jobs during all phases of the business cycle, although the mix of existing and new business contributions to job creation changes over time (Table 5). During recessions, the existing business share

Table 5

**Variation in Existing-Business Share of New Jobs, Manufacturing**

United States, 1973-88 (percent change)

Year	Existing-Business Share
1973	.88
1974	.87
1975	.76
1976	.86
1977	.82
1978	.87
1979	.90
1980	.92
1981	.90
1982	.77
1983	.73
1984	.90
1985	.85
1986	.75
1987	.75
1988	.88
Minimum	.73
Maximum	.92
Overall mean	.84
Recessionary-year mean	.87

Note: Shading indicates recessionary year.

of job creation rises. On average, existing businesses created 84 percent of new manufacturing jobs annually from 1972 to 1988. During the national recession that began in 1980, the average existing-business share of job creation rose to a peak of 92 percent. During the recovery in 1983, the existing business share fell to a low of 73 percent. The mean share for existing businesses during the five recessionary years over the 1972-88 period (1973-74, 1980, 1981-82) was 87 percent.

Despite the important role of existing businesses in gross job formation, the first section of this article showed that the net employment contribution of existing establishments was negative in

all sectors except services in the Tenth District over the period 1989-91. In contrast the U.S. manufacturing data reveal that the net employment contribution of existing U.S. manufacturing establishments oscillates between negative and positive over the business cycle (Table 4). In five of the 16 years from 1972-88, net manufacturing employment change in existing establishments was positive. All five of these years were expansionary periods for the economy as a whole.

In summary, when viewed over a longer time frame, expansions and contractions remain the two largest components of employment change over all phases of the business cycle. However,

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which component dominates appears to be influenced by both cyclical and secular trends. In addition, existing businesses create far more new jobs than new businesses throughout the business cycle. While some existing businesses are creating jobs, others are losing jobs. Except for a minority of expansionary years, the net employment contribution of existing businesses is negative.

### *CONCLUSIONS*

The broader view of employment change furnished by this article reveals that small net changes in employment can mask much larger changes in the gross components of employment change. Employment change in the Tenth District appears to be driven by large changes in employment caused by both expansions and contractions at existing businesses. Moreover, new businesses can often provide enough new jobs to offset the negative net employment contribution of existing businesses.

These findings suggest that state and local policymakers may want to consider a broader set of economic development policies that focus on more than a single component of employment change. For example, states have been criticized recently for competing with each other for new businesses. While jobs at new businesses may help balance job losses at existing businesses, gains in overall employment may be improved if state and local policymakers turn to a broader set of policies that include measures designed to foster growth at some existing businesses and curb job losses at others. Of course, improvements in job growth at any cost is not an appropriate goal of public policy. Policymakers still need to weigh the benefits of various approaches to economic development against their costs.

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