Mergers and Acquisitions in the United States: 1990-1994 *

by

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Abstract

Business merger and acquisition activity has been brisk in the United States in the recent past. Yet very little information has been available to help researchers understand the effects of this activity on jobs, businesses, and the American economy. This paper takes a first look at examining merger and acquisition activity using the newly available Longitudinal Establishment and Enterprise Microdata (LEEM) file. The analysis focuses on industries, establishments, and employment by employment size of firm. A first-time comparison of establishments that were acquired and survived over the 1990-1994 period with those that survived but were not acquired finds that the acquired establishments experienced more job change and, in the end, more net job loss than the nonacquired establishments. Establishments in small firms that were acquired by new or large firms experienced especially rapid job growth; however; job losses in establishments acquired from large firms more than offset these job gains.

Keywords: mergers, acquisitions, firm size, job growth

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Background

In recent months, the pace of business mergers and acquisitions has been nothing short of frenetic, with media coverage focusing on the record size of takeovers in many industries and on the substantial job losses associated with the downsizing of the combined large businesses. According to *The Economist*, "Wall Street's bull run has coincided with the biggest merger and acquisition boom in history; in the first half of 1998 the value of M&As reached $949 billion, more than in the whole of 1997, which was in turn seven times more than in 1991." [1] These media reports are based primarily on the behavior of the relatively few very large corporations that publicize their takeover and downsizing plans.

But questions arise: what are the overall effects of mergers and acquisitions on businesses, job growth and stability, and ultimately, the economy? Do the effects differ by industry and by the size of the firms involved? Comprehensive data covering mergers and acquisitions among both large and small firms in all industries have never before been available, so most previous studies of mergers have been based on special industry data bases or samples of large firms for which appropriate data can be compiled.[2]

A New Data Base

For the first time, new data by firm size from the Bureau of the Census enable an exploratory look at all mergers and acquisitions that occurred in the United States between 1990 and 1994. This period falls between the merger wave of the 1980s and the current surge of corporate acquisitions, so findings in this

[1] *The Economist*, September 5, 1998 (59). *The Washington Post*, August 16, 1998, reported the results of a study by job placement firm Challenger, Gray & Christmas, Inc., which said that 13 percent of the job cuts in the four months ending in July 1998 were related to mergers—up from 11 percent the previous year. For the first seven months of 1998 they reported 32,600 jobs lost due to M&A downsizing, up from 22,400 in the comparable 1997 period.

[2] See especially *Mergers, Sell-offs, and Economic Efficiency*, D.J. Ravenscraft and F.M. Scherer (The Brookings Institution, Washington, D.C., 1987), which explored a much wider variety of data than most (including the Federal Trade Commission's Line of Business data for 1974 through 1977) but still focused primarily on manufacturing.

report would be expected to substantially understate the magnitude and impact of the overall average merger and acquisition rates of the last two decades.

The establishments that were merged or acquired are identified using the Longitudinal Establishment and Enterprise Microdata (LEEM) file.[3] The LEEM tracks the ownership and employment, as well as other characteristics, of every U.S. business location or establishment that had employees in 1990, 1994, or 1995. The microdata describe each establishment for each year it had a positive payroll, in terms of its employment, annual payroll, location (state, county and metropolitan area), primary industry, and start year.

The focus here is on establishments that were acquired by or merged into another firm at some point between 1990 and 1994, as well as the characteristics of the firms that divested or acquired the establishments. The job generation rates of the acquired establishments are compared with those that survived the period and were not acquired.

Key definitions, characteristics, and limitations of the data and analysis, described in more detail in Appendix A, are as follows:

[3]This file was developed by the Bureau of the Census for the Office of Advocacy of the U.S. Small Business Administration. See Appendix A for a detailed description of the LEEM file.

A Caveat and a Definition

- Because data are available only for the end points of the periods (1990, 1994, and 1995), the study cannot identify the actual timing of acquisitions. Therefore, all patterns are general trends associated with acquisitions in the early 1990s, measured over intervals of several years.
- Small firms are defined here as firms with fewer than 500 employees; large firms have 500 or more employees. Comparisons are made between large and small source firms in 1990 (before acquisition) and large and small acquiring firms in 1994 (after acquisition).

Establishments: Acquired and Nonacquired

- An establishment is defined as a single location where business is conducted or where services or industrial operations are performed.
- Establishments (or locations) are the units that are acquired in this analysis; in the case of single-establishment firms, the acquired units are also firms.
- The study covers establishments that survived throughout the 1990-1994 period, but not those that started or closed during the period. Not included are acquired establishments that started during the period or those that were acquired during the period but closed before 1994. However, as noted below, the data on the firms that acquired these establishments include data on "new" acquiring firms that started after 1990.
- Establishments identified as being involved in mergers and acquisitions were compared with all other (nonacquired) establishments that remained in business over the 1990-1994 period.
- This analysis of job generation in acquired establishments between 1990 and 1994 cannot distinguish an establishment's pre-acquisition employment change from its change after acquisition. Post-acquisition

job creation data are therefore shown for the subsequent year (1994-1995), but the interval between the acquisition and job creation cannot be determined.

Firms: Sources and Acquirers of Establishments

- A firm (or enterprise or company) is defined as the largest aggregation of business legal entities under common ownership or control.
- In this study, firms are both the sources for and acquirers of establishments.
- Single-establishment (or single-unit) firms are single legal entities that operate as single establishments; that is, the firm and the establishment are identical. Most firms are single-unit firms.
- Multi-establishment (or multi-unit or multi-location) firms constitute only about 4 percent of all firms but represent 23 percent of all establishments. Multi-unit firms may comprise multiple establishments in a single legal entity or multiple legal entities.
- Data are included on the acquiring firms even if they did not exist at the beginning of the period. The job creation characteristics of these "new" acquiring firms that started after 1990 are compared with those of the older acquiring firms already in existence in 1990.

Overview of Merger and Acquisition Activity, 1990-1994

Of the 5.5 million private sector establishments with employees in the United States in 1990, 3.8 million were still active and had employees in 1994 (Figure 1). Among these surviving establishments, 98,924 (2.6 percent) were acquired by another firm some time between 1990 and 1994. These acquired establishments employed 5.25 million people in 1990, or 6.9 percent of the 1990 employment in all surviving establishments. They came from 43,085 different source firms.

By 1994, they were part of 31,555 acquiring firms, and their aggregate employment had dropped 3.3 percent to just over 5.07 million. In comparison, employment in the surviving establishments that were not acquired rose by 470,000 or 0.7 percent.

Surviving establishments owned by large firms (with 500 or more employees in 1990) were five times more likely than small firm establishments to be acquired: 9.2 percent of large firm establishments were acquired, compared with 1.6 percent of small firm establishments. Employees in large acquired firms were also more likely to lose their jobs. Business locations acquired from large firms by large firms lost 9.3 percent of their employment on average, while those acquired from small firms by small firms gained 1.1 percent. Those acquired from large firms by small firms lost almost 40 percent of their employment and those acquired from small firms by large firms gained 18.5 percent.

In contrast to the overall 6.7 percent employment losses in establishments acquired by firms already in existence in 1990, the employment in establishments acquired by new firms started after 1990 grew substantially, by 6.2 percent, on average. Establishments acquired by new firms from small source firms grew even faster, by 11.1 percent.

Merger and acquisition activity differed by industry. Acquisition rates for the major industries ranged from just 1.6 percent of all establishments in the service industries to 6.4 percent in finance, insurance, and

real estate. The finance sector also had the highest percentage of employment associated with acquisitions: 12.1 percent of the sector's workers in 1990 were in establishments that were acquired by 1994. The all-industry average was about one-half that, at 6.9 percent. Hospitals, restaurants, grocery stores, and banks—predominantly large firms—accounted for almost one-quarter of the employment in all acquired locations. Firms acquired more than 4,000 establishments in each of four industries: restaurants, national commercial banks, state commercial banks, and grocery stores. These transactions involved primarily large businesses acquiring all or parts of other large businesses.

The Source Firms

A total of 43,085 firms were the sources for the 98,924 establishments in 1990-1994. Of these source firms 40,179 (93 percent) were small in 1990 (Table 1). Small source firms contributed 1.8 million (34 percent) of the 5.25 million jobs in acquired establishments and almost 52,000 (52 percent) of the acquired establishments.

Multi-Unit Firms

Most of the acquired establishments came from firms with multiple locations. Most such multi-unit firms divested more than one, but not all, of their establishments. Specifically, 7,227 different multi- unit source firms divested 63,066 establishments (64 percent of the total). Only 1,828 (25 percent) of

Insert Figure 1

Table 1: Source Firms and Acquired Employment by Size of Firm and Number of Acquired Establishments per Firm, 1990

Acquired Establishments Per Firm	All Source Firms			Small Source Firms		Large Source Firms	
	Number	Percent Fully Acquired	Acquired Employment	Number	Acquired Employment	Number	Acquired Employment
Single-Unit Firms.	35,858	100.0	1,820,269	35,448	1,329,837	410	490,432
Multi-Unit Firms:							
1 Establishment.	2,605	27.4	322,344	1,990	137,672	615	184,672
2-9 Establishments	3,476	30.0	981,996	2,396	260,765	1,080	721,231
10+Establishments	1,146	6.2	2,122,998	345	73,753	801	2,049,245
Total	43,085	87.5	5,247,607	40,179	1,802,027	2,906	3,445,580

these multi-unit firms were fully acquired. About 4,700 (65 percent) of the multi-unit source firms were small, with fewer than 500 employees. Together they provided more than 470,000 of the acquired jobs. The 2,500 large multi-location source firms provided an additional 47,000 acquired establishments and almost 3 million jobs—56 percent of the 5.25 million workers in acquired establishments. The 801 large source firms that divested at least 10 of their establishments provided 39 percent of the total jobs.

These numbers will understate the original acquisitions if some locations were closed after acquisition, but before 1994. Even among the source firms from which at least 10 locations were acquired, only 6.2 percent had all of their 1990 establishments acquired and surviving until 1994.

Single-Location Firms

The remaining 35,858 source firms had a single location and were either acquired by a multi-unit firm or joined with another single-unit firm to create a new firm. These firms, which by definition were fully acquired, accounted for about 36 percent of acquired establishments and 35 percent of acquired

employment. The single-unit firms were overwhelmingly (98.9 percent) small. Small single-unit firms provided 1.3 million jobs—73 percent of the 1.8 million jobs acquired from small firms. Nearly one-half million workers were in the 410 large single-unit firms that were acquired.

The Acquired Establishments

Establishments belonging to large firms in 1990 were much more likely to be acquired by another firm than those in smaller firms (Table 2). The probability of acquisition generally increases with firm size to a maximum of 11.7 percent for establishments in firms with 500 to 9,999 employees. These establishments from very large (although not the largest) firms accounted for almost one-third of all mergers and acquisitions during this period and about 38 percent of workers in acquired establishments. Their average acquisition rate was nearly double the 6.6 percent rate for establishments from the largest firm size class with at least 10,000 employees.

Table 2: Acquired Establishments and Employment by Size of Source Firm in 1990

	Establishments			Employment		
	Number	Percent of	Percent of	Number		Percent
of Percent of 1990 Firm Employment	Acquired	Size Class	All Acquired	Acquired	Size Class	All Acquired
1-19 employees	19,874	0.7	20.1	163,884	1.2	3.1
20-99	17,226	3.8	17.4	642,537	4.5	12.2
100-499	14,644	7.7	14.8	995,606	8.9	19.0
500-9,999	30,445	11.7	30.8	1,994,400	11.1	38.0
10,000 or More	16,735	6.6	16.9	1,451,180	7.6	27.7
Fewer than 500	51,744	1.6	52.3	1,802,027	4.6	34.3
500 or More	47,180	9.2	47.7	3,445,580	9.3	65.7
All Firm Sizes	98,924	2.6	100.0	5,247,607	6.9	100.0

Only 1.6 percent of the surviving establishments of small firms with fewer than 500 employees were acquired, although these accounted for more than half of all the establishments acquired during the period. Establishments in firms with fewer than 20 employees were very unlikely to be acquired: their acquisition rate was only 0.7 percent. They accounted for only 20 percent of all mergers and only 3.1 percent of all of the employment in acquired establishments.

The Acquiring Firms

Small acquiring firms accounted for 84 percent of all the acquiring firms in the 1990-1994 period (Table 3). Some 85 percent of the small acquiring firms acquired only one establishment. Small firms gained just 19 percent of the acquired employment.

Almost 81 percent of the acquired employment ended up in large firms. More than 62 percent of the large acquiring firms acquired two or more establishments, and 20 percent of them acquired at least 10. Among the firms acquiring more than one establishment, more than 80 percent acquired establishments from at least two different firms.

Old and New Acquiring Firms

Firms already in operation in 1990 acquired 68 percent of the nearly 100,000 acquired establishments. All but one-eighth of these acquisitions were establishments that had belonged to other multi-unit firms. The 8,400 single-unit firms acquired by older firms were among the larger such firms, with an average of 77 employees in 1990.

Newer firms—those started after 1990—gained 32 percent of acquired locations, predominantly single-unit firms in 1990. These likely represent primarily mergers of two firms of similar size incorporating the establishments, employment, and activities of both component members.

Table 3: Acquiring Firms and Acquired 1994 Employment by Size of Firm and Number of Acquired Establishments per Firm

Acquired Establishments Per Firm	All Acquiring Firms			Small Acquiring Firms		Large Acquiring Firms	
	Firms	1994 Acquired Employment	Percent Acquiring from One 1990 Firm	Firms	1994 Acquired Employment	Firms	1994 Acquired Employment
1	24,360	1,061,318	100.0	22,468	646,353	1,892	414,965
2-9	6,064	1,393,236	20.2	3,947	304,124	2,117	1,089,112
10+	1,131	2,618,241	15.6	113	15,957	1,018	2,602,284
Total	31,555	5,072,795	81.6	26,528	966,434	5,027	4,106,361

Job Gains and Losses in Acquired Establishments

Between 1990 and 1994, employment changed more in the surviving acquired establishments than in surviving nonacquired establishments, and the overall result was greater job loss in the acquired establishments. The employment creation, destruction, and net change rates are calculated from the appropriate aggregate change in employment divided by the aggregate employment of those establishments in 1990. Because only surviving establishments are examined, startups and closures have no impact on these rates of change.

Some of the acquired establishments gained jobs, and their total gains were 21.3 percent of the 1990 base year employment of acquired establishments (Tables 4 and 5). Others lost jobs, and their total losses were 24.6 percent of the 1990 employment of acquired establishments. Thus, the net change in acquired establishments was a loss of 3.3 percent. The surviving nonacquired establishments, on the other hand, had a small net job increase of 0.7 percent during this period. (Again, the growth in overall private sector employment that comes primarily from job creation by establishments formed after 1990 is not reflected here.)

Acquired establishments had job destruction rates 6 percentage points higher, on average, than their nonacquired counterparts. The average job creation rate was only 3 percentage points higher. Why the higher job loss rate? A possible explanation is that many establishments were acquired primarily for their physical assets or for some of their skilled labor or management, which were subsequently transferred to other locations of the acquiring firm.

Job Change by Size of the Source Firm

The distribution of job creation, destruction, and net change by firm size varies depending on whether establishment job change is assigned to the size of the source firm in 1990 (Table 4) or to the size of the acquiring firm in 1994 (Table 5). When establishments were classified by the size of their source firms, net growth rates decrease systematically in both acquired and nonacquired establishments as firm size increases. This inverse relationship is driven by the job creation part of the net change, as job destruction does not vary greatly by beginning firm size. The only exception is in nonacquired establishments in firms with 500 to 9,999 employees, where a relatively low job destruction rate results in a higher than expected net growth rate.

Table 4: 1990-1994 Job Change in Acquired and Nonacquired Establishments by 1990 Firm Size (Percent, except Employment Figures)

1990 Firm	Acquired Establishments				Nonacquired Establishments			
Employment Size	1990 Employment	Net Change	Job Creation	Job Destruction	1990 Employment	Net Change	Job Creation	Job Destruction
1-19	163,884	79.1	95.3	-16.2	13,773,704	12.5	30.1	-17.6
20-99	642,537	9.6	34.6	-25.0	13,493,227	-1.4	18.5	-19.9
100-499	995,606	-3.1	25.0	-28.1	10,159,438	-2.4	17.0	-19.4
500-9,999	1,994,400	-5.9	16.1	-22.0	15,930,412	0.4	15.7	-15.3
10,000+	1,451,180	-14.9	11.6	-26.5	17,617,319	-4.9	13.5	-18.4
All Firm Sizes	5,247,607	-3.3	21.3	-24.6	70,974,100	0.7	18.7	-18.0

Table 5: 1990-1994 Job Change in Acquired and Nonacquired Establishments by 1994 Firm Size (Percent, except Employment Figures)

1994 Firm	Acquired Establishments				Nonacquired Establishments			
Employment Size	1990 Employment	Net Change	Job Creation	Job Destruction	1990 Employment	Net Change	Job Creation	Job Destruction
1-19	28,974	-6.6	25.8	-32.4	15,126,114	-9.8	16.4	-26.2
20-99	310,054	-0.1	29.0	-29.1	12,854,741	6.3	22.9	-16.6

100-499	646,122	-2.6	29.0	-31.6	9,715,787	9.4	24.0	-14.6	
500-9,999	2,041,317	-1.6	21.3	-22.9	15,778,488	4.6	18.4	-13.8	
10,000+	2,221,140	-5.5	17.8	-23.3	17,498,970	-2.9	14.6	-17.5	
All Firm Sizes	5,247,607	-3.3	21.3	-24.6	70,974,100	0.7	18.7	-18.0	

Reclassifying Job Change by Size of the Acquiring Firm

Note that reclassifying establishments from their 1990 to their 1994 firm size has significant effects on the distribution of change by firm size. For example, when nonacquired firms are classified by their 1994 firm size, there are 1.4 million more employees in the smallest (1-19-employee) size class than when they are classified by their 1990 firm size. The difference is the increase in employment because of firms shrinking into the smallest class, minus the employment of firms that grew out of the smallest class during the four-year period.

In the acquired group, all firm sizes registered negative net job change, with the smallest and largest size classes experiencing the greatest losses. In the nonacquired group, much of the positive growth shifts to the middle size categories. The 5.5 percent loss by acquired establishments in the largest firm size class is almost twice the 2.9 percent loss experienced by nonacquired establishments in the same size class.

Job Creation and Destruction by New and Old Acquiring Firms

Establishments acquired by “new” firms—those started after 1990—grew faster on average than those acquired by firms already in existence in 1990 (Table 6). Business locations acquired by these new firms increased their employment 6.2 percent, and those acquired by new firms from small firms grew even faster, by 11.1 percent.

Table 6: 1990-1994 Job Change in Acquired Establishments by Type of Source Firm and Age of Acquiring Firm (Percent, except 1990 Employment Figures)

Source Firm Type/ Age of Acquiring Firm	1990 Employment	Net Change	Creation	Destruction
Single Unit Acquired by:				
Old Firm	648,839	1.0	25.9	-24.9
New Firm	1,171,430	5.7	34.6	-28.9
Acquired from Multi-unit Firm by:				
Old Firm	3,218,355	-8.3	15.1	-23.4
New Firm	208,983	9.0	27.4	-18.4
Acquired from All Firm Types	5,247,607	-3.3	21.3	-24.6
Old Firm	3,867,194	-6.7	16.9	-23.6
New Firm	1,380,413	6.2	33.5	-27.3

Note: "New" firms came into existence after 1990; old firms existed in 1990.

Moreover, while single-location firms acquired by older firms grew only 1.0 percent, those acquired by new firms grew 5.7 percent. The contrast is even greater for multi-unit firms: establishments acquired from multi-unit firms by new firms with multiple units—although few in number—increased jobs by 9 percent, in contrast to an 8.3 percent job loss rate in the older multi-unit firm acquisitions. In sum, the establishments acquired by firms that already existed in 1990 accounted for nearly three-fourths of the acquired jobs. Once they were acquired, however, they rarely grew.

Shifts of Acquired Establishments and Employment among Firm Sizes

An establishment's firm size class may change over time because of employment changes in the establishment itself, changes in other establishments owned by the same firm, or acquisition by another firm. As establishments grow, they may cause the aggregate employment of their firm to expand across the boundary of a firm size class, thereby shifting all of the firm's employment to a larger size class. Similarly, loss of employment in an establishment may cause the owning firm to be reclassified to a smaller size class. In cases of acquisition or divestiture of establishments, the transfer of employment among the firms that own these transferred establishments will also change the firms' aggregate employment and may shift their size classifications.

The Redistribution of Employment by Firm Size, 1990-1994

In most cases of merger or acquisition, the acquiring firm is larger, at least after the acquisition, than the firm from which the acquired establishment came. A full 96.6 percent of the employment in establishments acquired by firms with fewer than 100 employees in 1994 came from other firms that

Table 7: Distribution of 1990 Employment of Acquired and Nonacquired Establishments by 1990 Size of Source Firm and 1994 Size of Acquiring Firm (Percent)

Source Firm	1994 Acquiring Firm Size				1994 Nonacquired Firm Size			
1990 Employment	1-99	100-499	500-9,999	10,000+	1-99	100-499	500-9,999	10,000+
1-99	96.6	46.0	7.2	1.6	93.7	10.7	0.1	0.0
100-499	1.5	47.3	26.1	6.8	5.7	79.9	5.1	0.0
500-9,999	1.5	4.5	53.7	38.9	0.5	8.9	89.1	4.9
10,000+	0.4	2.2	13.0	52.7	0.1	0.6	5.7	95.1
All Firm Sizes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

had fewer than 100 employees in 1990 (Table 7). The firms with 100 to 499 employees in 1994 got 46 percent of their acquired employees from other firms with fewer than 100 employees in 1990.

Large firms acquired most of their establishments from other large firms. Only 20 percent of their acquired employment came from establishments that belonged to small firms in 1990. Those with 500 to 9,999 employees did use smaller firms as the source of acquired establishments for one-third of their acquired employment. The firms with at least 10,000 employees obtained more than one-half of their acquired employment from other firms of the same size. Only 8 percent of their acquired employment came from establishments that belonged to small firms in 1990.

Of course, employment shifts between firm size classes may be the result of factors other than the changes in ownership identified as acquisitions. Many are the result of job growth and loss through expansions and contractions within the same firm. In nonacquired surviving establishments, 93.7 percent of the employment in firms with fewer than 100 employees in 1994 belonged to the same firm size class in 1990. The surviving establishments belonging to firms with at least 10,000 employees in 1994 had 19.7 million employees in 1990, and more than 4.9 percent of these jobs were in firms with fewer 10,000 employees in 1990. Workers in acquired firms were much more likely than those in nonacquired firms to be shifted from a smaller firm size class in 1990 to the largest class in 1994. Indeed, acquired establishments accounted for all of the establishments moving from the smallest (1-19 jobs) firm size class in 1990 to the largest (10,000+ jobs) firm-size class in 1994.

Shifting Patterns of Employment in Large and Small Firms

The LEEM data allow analysts to distinguish some of the patterns of shifting employment across firm sizes, in addition to measuring the gross or net changes in the numbers of jobs at each establishment. For this analysis of mergers and acquisitions between 1990 and 1994, the researchers constructed a simplified accounting of the changes in employment of acquired establishments, in conjunction with an accounting of

how they have shifted their affiliation between firms classified as large or small. This framework is used first to examine the net job growth rates of the acquired establishments in 1990-1994 according to the size classes of their source and acquiring firms (Figure 2). For comparison, the net job growth rates in nonacquired firms are provided (Figure 3).

What happened to employment in establishments acquired from small firms? These establishments employed 1.8 million people in 1990 (Figure 2). The establishments acquired by other small firms accounted for just over half the jobs (930,000). By 1994, these establishments had added very few jobs—about 10,000, or 1 percent of their 1990 employment. In contrast, small-employer establishments acquired by large firms had about 870,000 employees in 1990 but added about 160,000 net jobs, or 18.5 percent of their 1990 work force, by 1994.

What about the workers in establishments acquired from large source firms? There were 3.45 million such workers in 1990. Other large firms picked up the majority (3.4 million) and shed some 320,000 of them—about 9.3 percent—by 1994. The few large-firm establishments acquired by small firms brought along some 50,000 jobs—about 20,000 of which (37.8 percent) were eliminated in the 1990-1994 period.

In total, establishments that were part of small source firms added about 170,000 jobs, or 9.4 percent of their 1990 work force, whereas establishments acquired from large source firms lost 340,000 jobs, or 9.9 percent.

Insert Figure 2

Insert Figure 3

Nearly all of the net job creation within surviving acquired establishments occurred at firms that were small in 1990, but large by 1994. Large, profitable firms have the most capital both to make acquisitions and to add employees from internal growth. Moreover, the acquisition itself could have moved these firms into the large size category. In contrast, a firm that was small in 1994 even after acquiring one or more establishments faced an upper limit on the number of jobs it added (or it would have been a large firm by 1994).

How do these results compare with employment changes in establishments that survived from 1990 to 1994 without a change of ownership? Small nonacquired surviving establishments employed 37.42 million workers in 1990 (Figure 3). Ongoing establishments that stayed small accounted for 36.61 million of these jobs in 1990 and added another 660,000 net jobs, or 1.8 percent of their base-year total. Continuing establishments that were part of firms that grew enough to become large by 1994 started with 810,000 workers and added another 620,000, or 76.5 percent of their 1990 total.

Establishments of large firms employed 33.55 million people in 1990, of which 32.46 million initially were in firms that were still large four years later. By 1994, the number of workers in establishments of firms that remained large had shrunk by 390,000, or 1.2 percent of their base year total. The number of workers in establishments that were part of large firms that became small fell from 1.09 million in 1990 by 420,000, or 38.5 percent.

As with acquired establishments, nonacquired establishments that began in small firms accounted for all of the net job gains, whereas nonacquired establishments that started out as part of large firms shrank overall.

What differences are there in the employment patterns of acquired and nonacquired establishments? Overall, establishments that were acquired lost some 170,000 jobs, or almost 3.3 percent of their 1990

total of 5.25 million. Establishments that remained in the same hands added 470,000 jobs, or 0.7 percent of their base-year count of 70.97 million.

Among establishments that remained in existence from 1990 to 1994, the greatest percentage increase in jobs occurred in nonacquired establishments of small firms that became large, a category that added 76.5 percent to its 1990 employment. This is not surprising: by definition, these firms added jobs (in moving from small to large) and did so from existing establishments rather than acquired ones. On balance they added more jobs than acquired establishments in firms that crossed from small to large; those establishments increased their net employment by 160,000, or 18.5 percent of their 1990 total. The largest number of net new jobs (660,000) came from establishments in small firms that were not acquired.

Similar numbers of net job losses occurred in three types of establishments that were part of large firms in 1990, namely establishments that remained in the same large firm (-390,000), stayed in the same firm as it shrank into the small firm category by 1994 (-420,000), or were sold to another large firm (-320,000). In percentage terms, almost equally large job losses occurred among establishments that wound up in a small firm, whether through sale or internal shrinkage (-38 percent each).

In sum, 97 percent of the 1994 employment in establishments acquired by small firms came from other firms that were small in 1990. In comparison, just 75 percent of the 1994 employment in establishments acquired by large firms came from other firms that were large in 1990. Put another way, 1990 small firm establishments contributed fully one-quarter of the employment in 1994 establishments acquired by large firms.

Industry Differences

Merger and acquisition activity differed by industry (Table 8). Acquisition rates for the major industries ranged from just 1.6 percent of all establishments in the service industries to 6.4 percent in finance, insurance, and real estate. The finance sector also had the highest percentage of employment associated with acquisitions: 12.1 percent of the sector's workers in 1990 were in establishments that were acquired by 1994. The all-industry average was about one-half that, at 6.9 percent.

In absolute terms, the largest number of acquisitions occurred in retail trade (about 29,000 or 30 percent of all acquired establishments), followed by finance and services (about 22,000 or 23 percent each). Employment in acquired establishments was concentrated in services (1.6 million or 31 percent of the 5.2 million workers in all acquired establishments) and manufacturing (1.4 million or 26 percent).

Fourteen four-digit Standard Industrial Classification (SIC) code industries had more than 1,000 establishments acquired between 1990 and 1994.[4] More than 4,000 establishments were acquired in each of the top four industries: eating places, national commercial banks, state commercial banks, and grocery stores. Fourteen industries had more than 50,000 employees in acquired establishments.[5] The top five were general medical and surgical hospitals, eating places, grocery stores, national commercial banks, and state commercial banks. General medical and surgical hospitals alone had more than 440,000 employees in acquired establishments.

Jobs Created and Lost

[4]They were, in order from most to fewest acquired: eating places; national commercial banks; state commercial banks; grocery stores; shoe stores; gasoline service stations; drug stores and proprietary stores; personal credit institutions; insurance agents, brokers, and service; real estate agents and managers; offices and clinics of doctors of medicine; federally chartered savings institutions; beauty shops; and skilled nursing care facilities.

[5]They were, in order from most to fewest employees: general medical and surgical hospitals; eating places; grocery stores; national commercial banks; state commercial banks; skilled nursing care facilities; department stores; help supply services; aircraft; hotels and motels; home health care services; search, navigation, guidance, aeronautical, and nautical equipment; offices and clinics of doctors of medicine; and engineering services.

In only two of the major industries did acquired establishments have positive job growth in 1990-1994, and in both of these industries—transportation, communications, and public utilities; and services—the average job growth rates in the surviving acquired establishments exceeded those in nonacquired establishments (Table 9). Service establishments in both categories had both above-average job creation rates, and below-average job loss rates, resulting in unusually high net job growth rates for surviving establishments.

Table 8: Acquired Establishments and their Employment by Industry

Industry Division	Establishments Acquired	Percent of Industry	Employment Acquired	Percent of Industry
Manufacturing	8,371	3.1	1,360,870	8.2
Transportation, Communications, Public Utilities,	5,090	3.4	244,726	5.3
Wholesale Trade	9,372	2.9	287,712	5.7
Retail Trade	29,291	3.1	951,737	6.1
Finance, Insurance, Real Estate	22,473	6.4	644,857	12.1
Services	22,434	1.6	1,622,009	6.7
Other Industries	1,893	0.5	135,696	2.8
All Industries	98,924	2.6	5,247,607	6.9

Table 9: 1990-1994 Job Change in Acquired and Nonacquired Surviving Establishments by Industry

	Acquired Establishments				Nonacquired Establishments			
Industry Division	1990 Employment	Net Change	Job Creation	Job Destruction	1990 Employment	Net Change	Job Creation	Job Destruction
Manufacturing	1,360,870	-5.6	16.9	-22.5	15,313,215	-2.7	14.1	-16.9
Transportation, Communications, Public Utilities	244,726	0.8	25.1	-24.3	4,342,876	-0.8	18.6	-19.4
Wholesale Trade	287,712	-2.7	22.3	-25.0	4,799,006	2.4	21.1	-18.7
Retail Trade	951,737	-12.6	12.7	-25.3	14,542,342	-2.6	15.1	-17.7
Finance, Insurance, Real Estate	644,857	-14.6	19.6	-34.2	4,695,374	-3.5	18.9	-22.4
Services	1,622,009	7.8	29.4	-21.6	22,560,140	7.2	22.6	-15.5
Other	135,696	-3.8	26.8	-30.6	4,720,166	-5.5	22.5	-27.9
All Industries	5,247,607	-3.3	21.3	-24.6	70,974,100	0.7	18.6	-18.0

The finance, insurance and real estate industry had the highest net job loss rate for acquired establishments, primarily because of a high rate of job destruction. The acquired establishments in retail trade also had a high net job loss rate, primarily because of a low rate of job creation

Job Change in the Post-Acquisition Period

The 1990-1994 employment change in acquired establishments cannot be separated into pre-acquisition and post-acquisition change, because data are not yet available for the intervening years. Examining the 1994-1995 job change in the establishments acquired between 1990 and 1994 can provide a clearer picture of post-acquisition growth patterns. Comparative data are available for the. nonacquired establishments. The job destruction rates for this period include job losses from closures of some of these establishments.

Table 10: 1994-1995 Job Change in Acquired and Nonacquired Establishments by 1994 Firm Size

	Acquired Establishments				Nonacquired Establishments			
1994 Firm Employment	1994 Employment	Net Change	Job Creation	Job Destruction	1994 Employment	Net Change	Job Creation	Job Destruction
1-19	27,059	-0.7	15.0	-15.7	13,648,190	-1.1	13.6	-14.7
20-99	309,887	-0.6	13.5	-14.0	3,671,327	-1.1	10.4	-11.5
100-499	629,488	-3.3	12.9	-16.2	10,628,837	-1.5	9.5	-11.0
500-9,999	2,007,776	-4.0	10.1	-14.1	16,508,784	-1.9	7.1	-9.1
10,000+	2,098,585	-5.8	8.5	-14.4	16,995,870	-3.3	6.9	-10.1
All Firm Sizes	5,072,795	-4.4	10.0	-14.5	71,453,008	-1.9	9.3	-11.1

The gross job destruction rate in 1994-1995 of the firms that acquired establishments between 1990 and 1994 was high, at 14.5 percent, and was apparently independent of firm size (Table 10). The gross job creation rate in this period subsequent to the acquisition varied with the acquired establishment's firm size, from a high of 15 percent in firms with fewer than 20 employees, to a low of 8.5 percent in firms with at least 10,000 employees. Again, net change rates were inversely related to firm size, from a net loss of 0.7 percent in the smallest firms to a net loss of 5.8 percent in the largest firms.

The job creation, destruction, and net loss rates of the nonacquired establishments were lower than those of the acquired establishments for every firm size class, with two exceptions: the two smallest size

classes had lower net loss rates for acquired than for nonacquired establishments. For nonacquired establishments, as for acquired establishments, net employment change rates varied with firm size, from an average loss rate of 1.1 percent in the smallest firms to a loss rate of 3.3 percent in the largest size class. The overall net loss rate for these firms was only 1.9 percent, less than half of the 4.4 percent net loss rate for acquired establishments. Note once again that these data do not cover new establishments formed after 1990 and therefore do not reflect the usually high rates of net job creation in these establishments.

Conclusion and Topics for Further Research

While only 2.6 percent of the surviving establishments were acquired from 1990 to 1994, this acquisition activity caused 6.9 percent of employment in the surviving establishments to involuntarily change employers. Establishments in small firms involved in acquisition activity generated much more employment than those in large firms. In fact, the acquired establishments that belonged to large firms before their acquisition experienced such significant losses in employment that the group of acquired establishments as a whole recorded a net loss of jobs. Over this same period, the entire population of surviving establishments produced a small net increase in jobs.

When, as planned, the LEEM data set is expanded to cover all businesses from 1989 through 1996, it will be possible to track annual changes in establishments and their owning firms, and to examine in more detail the effects of mergers and acquisitions on these businesses over time. There is great interest in analyzing the firm size and industry distribution of the more recent merger and acquisition wave. Other topics of broad interest include:

- Analysis of the industry distribution of the establishments and firms shifting from the small firm to the large firm category.
- Investigation of the differences in acquisition rates across states, and how these differences are correlated with state economic growth rates.
- Measuring the extent to which establishments are acquired in the primary industry of their acquiring firm, or represent diversification.
- Refining the analysis of growth patterns in acquired establishments using annual data and exact pinpointing of the year of acquisition.
- Tracking establishments across multiple acquisitions or resales.

Additional data sources at the Census' Center for Economic Studies may be merged with the LEEM file to facilitate investigation of other aspects of merger and acquisition activity such as changes in productivity and profitability.

Technical Appendix: The LEEM File

The Longitudinal Establishment and Enterprise Microdata (LEEM) file has multiple years of data for each U.S. private sector (nonfarm, excluding railroads) business with employees. The current LEEM file facilitates tracking employment, payroll, and enterprise affiliation and (employment) size for the more than 9 million establishments that existed at some time during 1990, 1994, or 1995. The Census Bureau constructed the LEEM file from Census' Statistics of U.S. Business (SUSB) files and the associated Longitudinal Pointer File, which facilitate tracking establishments over time, even when the establishments change their identification numbers.

The LEEM data are the product of a long-term cooperative project of the Office of Advocacy of the U.S. Small Business Administration (SBA) with the Bureau of the Census (U.S. Department of Commerce). Since 1991, the SBA's Office of Advocacy has been contracting with the Census Bureau for development and production of annual comprehensive and timely aggregated data on the performance of U.S. businesses by firm size. Building on the annual *County Business Patterns* data base, which covers all business establishments with employees, the Census Bureau constructs annual SUSB Tabulation files. Data on the firm that owns each establishment (firm-wide employment, payroll, estimated receipts, primary industry and state) are appended to each establishment record. These SUSB Tabulation files have been prepared for every year from 1988 through 1995. They are the only annual federal business data supplying information classified by firm size.

Most of the establishments in the SUSB Tabulation files have the same identification number in each annual file, as long as they remain in business. For these businesses, changes in their employment can be measured by comparing their corresponding records for different years. However, when businesses are sold, or change their legal form, or add a secondary location, their identification numbers usually change.

Census has constructed a Longitudinal Pointer file to link establishment records from the SUSB Tabulation files for 1989 through 1995, so that surviving establishments can be identified even when a business changes its identification number. Using the Longitudinal Pointer File, business births and deaths can be more accurately identified, and changes in all surviving businesses can be measured consistently.

The LEEM file was constructed from these SUSB Tabulation files by Census' Economic Planning and Coordination division under contract with the SBA. This new composite file links three years (1990, 1994, and 1995) of data for all private sector establishments with employees in any of those years. Each establishment is represented by a record that includes the start year of the establishment and three years of annual information extracted from the 1989-1995 Longitudinal Pointer file and from the three appropriate annual SUSB Tabulation files. The annual information for each establishment includes its Census File Numbers, Standard Industrial Classification, state, county, metropolitan statistical area, enterprise employment, establishment employment, and annual payroll in thousands.

Plans are under way to have several years added to the file, so that by the end of 1998 it will include annual data for all private sector establishments with any employment for 1989 through 1996.

Establishments Surviving between 1990 and 1994

Because of the limited LEEM data at this time, this study is limited to analysis of establishments that had employees in both 1990 and 1994, called "surviving" establishments. Although the impact of business startups and closures on job growth rates are excluded, the employment related to startups and closures has been included in the calculation of overall employment of each firm. These calculations are used for classifying some data by size of firm in either 1990 (the size of the source firm for the acquired establishments) or 1994 (the size of the acquiring firm, after acquisitions).

It also follows that mergers and acquisitions of establishments that started up after 1990 or were closed before 1994 are not covered in this introductory study.

Changes in Establishment Identification

A change in Census File Number (CFN) of an establishment is the result of one of three actions: 1) a change in ownership, 2) a change in the legal structure of the organization, or 3) a change from a single establishment firm to a multi-unit firm type. CFN changes may alternatively be classified as follows:

1. A single-unit firm can become a different single-unit firm.
2. A single-unit firm can become part of a multi-unit firm.
3. An establishment in a multi-unit firm can become a single-unit firm.
4. An establishment in a multi-unit firm can become part of a different multi-unit firm.

It is obvious that the first type of change does not involve a merger into or acquisition by another firm, so these firm changes are not considered in the investigation. Cases involving part of a multi-unit firm becoming a single-unit firm also are not considered, as this activity characterized some type of divestiture, rather than a merger or acquisition. Both of these types of changes are interesting in their own right, and could be topics of future research.

Records for several hundred establishments showed an eligible change of CFN between 1990 and 1994, but their changes were reversed in 1995, with their CFNs reverting to their 1990 values. These establishments were excluded from further consideration as potential mergers and acquisitions.

Changes involving a single unit becoming part of a multi-unit firm and a multi-unit establishment changing to a different multi-unit firm are both likely candidates for involvement in a merger or acquisition. While these two types of change occurred in only a little more than 4 percent of the surviving establishments

from 1990 to 1994, they represented more than 11 percent of the employment in 1990.[6] These 169,822 establishments identified as potential mergers and acquisitions were further screened using the following methodology to exclude simple changes in ownership and divestitures to newly created firms.

Changes in Employment of Acquiring Firms

To help identify mergers and acquisitions within this group, the researchers hypothesized that if the level of firm employment of the establishments with these changes in identification number is similar in both years, it is probably just a change in legal structure or ownership, rather than a change in affiliation. However, if the firm employment change from 1990 to 1994 is relatively close to the 1994 employment of the establishment with the changed CFN, then a merger or acquisition is probably involved. In establishing rules to apply this principle of "relatively close," the researchers differentiated the lower boundary depending upon the establishment's 1994 employment. The cutoffs are as follows:

1. For establishments with fewer than 5 employees: 1990-1994 firm employment change of 100 percent of 1994 establishment employment.

2. For establishments with 5-19 employees: firm employment change of 75 percent of 1994 establishment employment.

3. For establishments with 20-499 employees: firm employment change of 50 percent of 1994 establishment employment.

4. For establishments with 500+ employees: firm employment change of 25 percent of 1994 establishment employment.

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[6]Zoltan Acs and CatherineArmington,"Longitudinal Establishment and Enterprise Microdata (LEEM) Documentation," *CES Discussion Paper 98-9* (Washington, D.C.: U. S. Department of Commerce, Bureau of the Census, Center for Economic Studies, 1998).

This means that for an establishment with the changed CFN and a firm employment change from 1990 to 1994 greater than the designated lower boundary percentage of the establishment's 1994 employment, there is a high probability that it was merged or acquired and it is added to the acquired group. Of the establishments identified as potential mergers or acquisitions, 84,657 (49.9 percent) passed this employment test.

This employment test implicitly eliminates divestitures of establishments, or groups of establishments, from larger firms to form a new firm, because the change in the total firm employment in this case would always involve a shrinkage.

An unknown number of firms reporting all their employment consolidated as single establishments in 1990 were later identified as multi-unit firms and therefore appear in 1994 as several multi-unit establishments. In this case, the largest surviving establishment would be identified as the continuation of the earlier reported single-unit establishment, but normally with much lower establishment employment. However, if such a firm also grew vigorously during this period, it might nevertheless pass the employment test that was designed to screen out such changes.

Previously Existing Firms

Another way to identify the occurrence of an acquisition is to examine the establishments with eligible CFN changes previously mentioned to determine if the firm identified by the establishment's new CFN already existed in 1990. If that firm did exist in the prior period, then the establishment was almost surely acquired by it during that time frame. Of the potentially acquired establishments, 67,299 belonged in 1994 to firms

that already existed in 1990, and 14,267 of these had not passed the employment test. When these were added to the establishments that passed the employment test, a total of 98,924 establishments (58.3 percent of the potential mergers) were likely to have been acquired between 1990 and 1994.

Nonacquired Surviving Establishments

To facilitate comparison of the growth of acquired establishments with similar establishments that were not acquired by other firms during the 1990 to 1994 period, the researchers aggregated data for all of the nonacquired establishments that had positive employment in both 1990 and 1994. This included 3.7 million surviving establishments, with 71 million employees in 1990. Of course some of these are single-unit establishments that changed ownership and multi-unit establishments that were divested from larger firms to create new firms.

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