



Identifying High-Risk Small Business Industries

**The Basis for Preventing Occupational Injury,
Illness, and Fatality**

NIOSH Special Hazard Review

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Foreword

The United States has a long, proud tradition of entrepreneurship. Small businesses in particular are a vital component of our economy and provide employment for more than half the workers in American industry. Often, occupational safety and health issues are only one of a multitude of concerns with which a small business owner must contend. Promoting occupational safety and health through appropriate prevention programs is often a difficult task for small business because of the dispersion of worksites, the variability of work settings, and the small number of workers who can be reached at any one worksite.

As a result, the National Institute for Occupational Safety and Health (NIOSH) has prepared this report to characterize the risk of occupational injury, illness, and fatality in industries composed mostly of small business establishments. Identifying these risks will provide essential information to practitioners in occupational safety and health, the small business community (owners, managers, and employees), labor officials, trade associations, insurers, product suppliers, local and State agencies, and others involved with small business. This document will be of special interest to researchers in occupational safety and health as a first step toward identifying the underlying causes of injuries and illnesses in small business industries and designing effective and appropriate prevention strategies for a hard-to-reach target audience.

Linda Rosenstock, M.D., M.P.H.
Director, National Institute for
Occupational Safety and Health
Centers for Disease Control and Prevention

Abstract

More than half of the U.S. workforce is employed in business establishments with fewer than 100 employees. Prevention of occupational illness and injury is often difficult in these small business establishments because they have few safety and health resources, cannot usually hire staff devoted to safety and health activities, and often lack the ability to identify occupational hazards and conduct surveillance. This investigation was conducted to identify high-risk small business industries from national data on occupational injury, illness, and fatality. Both the total number of cases and incidence rates were considered. Small business industries were identified as those with standard industrial classification (SIC) codes in which at least 80% of the employees work in business establishments with fewer than 100 employees.

In this report, 253 small business industries were identified with data from the U.S. Bureau of the Census and the Bureau of Labor Statistics (BLS) for the years 1994–1995. These industries represent nearly 4 million establishments and more than 30 million employees—roughly one-third of all employees in private industry. Occupational injury, illness, and fatality data were available for 105 of these industries. From the data for these industries, the top 25% (n=26) were ranked according to their injury, illness, and fatality experience. A combined risk index (i.e., the combined risk of occupational injury, illness, and fatality) was also used to rank these small business industries. The highest-ranked small business industries include *Logging* (SIC 241); *Cut Stone and Stone Products* (SIC 328); *Trucking Terminal Facilities* (SIC 423); *Roofing, Siding, and Sheet Metal Work* (SIC 176); *Camps and Recreational Vehicle Parks* (SIC 703); *Landscape and Horticultural Services* (SIC 708); *Animal and Marine Fats and Oils* (SIC 2077); *Concrete, Gypsum, and Plastic Products* (SIC 327); and *Taxicabs* (SIC 412). This information can be used by the small business community, labor officials, occupational safety and health practitioners and agencies, and others to target prevention activities to small business industries with the greatest need.

Executive Summary

More than half (56%) of the U.S. workforce in private industry is employed in business establishments with fewer than 100 employees [Bureau of the Census 1997; Wiatrowski 1994]. Of the approximately 6.5 million private industry establishments operating in the United States, more than 6.3 million (98%) employ fewer than 100 employees, and more than 5.6 million (87%) employ fewer than 20 employees. Prevention of occupational illness and injury is often difficult in these establishments because small businesses generally have few safety and health resources, cannot usually hire staff devoted to safety and health activities, and often lack the ability to identify occupational hazards and conduct surveillance [Wiatrowski 1994; Pedersen and Sieber 1988]. Given limited Federal, State, and local resources available in the United States for occupational safety and health, public and occupational health practitioners must focus prevention activities on industries that have the greatest need. Identifying and understanding the risks associated with such industries will also prove useful to employers, employees, and insurers involved in small business. Therefore, this report provides information about high-risk small business industries identified from national data sources. Included are both the total number of cases and incidence rates (IRs) of occupational injuries, illnesses, and fatalities in small business industries.

For this report, small business industries were identified as those with standard industrial classification (SIC) codes in which at least 80% of the employees work in business establishments with fewer than 100 employees.

According to *County Business Patterns 1994** [Bureau of the Census 1996], 253 industries were identified as meeting the criterion for small business industries. The 253 small business industries include

- 1 industry at the two-digit SIC level,
- 102 industries at the three-digit SIC level, and
- 150 industries at the four-digit SIC level.

Of the 150 small business industries identified at the four-digit SIC level, 96 existed within a broader (three-digit) small business industry.

Occupational injury and illness data by SIC code for small business industries were obtained from the *Survey of Occupational Injuries and Illnesses, 1995* [BLS 1997c] (the SOII). Information about fatal occupational injuries was derived from the

*The most recent year available at the time this report was prepared.

Census of Fatal Occupational Injuries, 1994 [BLS 1995] (the CFOI). The small business industries identified in this study include nearly 4 million establishments and more than 30 million employees—roughly one-third of all employees in private industry. Small business industries accounted for more than 1.5 million nonfatal occupational injury cases and 56,000 illness cases in 1995 (total cases, with and without lost workdays), and 1,924 fatal occupational injuries (including 356 self-employed workers) in 1994. Detailed occupational injury, illness, and fatality data were available for 105 of the 253 identified small business industries; that is, data were not available for most of the four-digit SIC codes because the 1995 SOII [BLS 1997c] is designed to generate industry estimates at this level only for manufacturing industries, and at the three-digit level for nonmanufacturing industries.

The 105 small business industries with available data were ranked according to the total number of cases and IRs for occupational nonfatal injuries, illnesses, lost workdays, and fatal injuries. They were also ranked by a *combined risk index* for each industry. This combined risk index was the total of the scores for the rankings of the IRs for nonfatal occupational injuries, occupational illnesses, and fatal occupational injuries. For each small business industry, the total number of cases and IRs for occupational illnesses, injuries, and fatalities reflect the extent and severity of the risk. However, the number of illnesses, injuries, or fatalities in a particular small business industry reflects both the risk associated with that industry and the number of workers in the industry.

The highest IRs (per 100 full-time employees) for nonfatal injuries occurred in the following industries:

	<i>IR</i>
<i>Manufacturing Wood Containers</i> (SIC 244)	16.9
<i>Wood Pallets and Skids</i> (SIC 2448)	16.5
<i>Manufacturing Animal and Marine Fats and Oils</i> (SIC 2077). . .	16.4
<i>Roofing, Siding, and Sheet Metal Work</i> (SIC 176)	14.8
<i>Truck Terminal Facilities</i> (SIC 423)	14.7

By comparison, the average IR for nonfatal injuries in all private industry was 7.5 per 100 full-time employees. All of the top 26 small business industries (the top 25%) exceeded this rate. The largest numbers of nonfatal injuries occurred among employees in the following industries:

	<i>Number</i>
<i>Eating and Drinking Places</i> (SIC 581)	365,600
<i>General Contractors and Operative Builders</i> (SIC 15)	102,700
<i>Plumbing, Heating, and Air Conditioning</i> (SIC 171)	84,900
<i>Machinery, Equipment, and Supplies</i> (SIC 508)	53,600
<i>Motor Vehicles, Parts, and Supplies</i> (SIC 501)	46,000

The highest-ranking small business industries by occupational illness IR (per 100 full-time workers) included employees involved with the following industries:

	<i>IR</i>
<i>Cut Stone and Stone Products</i> (SIC 328)	0.9
<i>Dairy Products Stores</i> (SIC 545)	0.7
<i>Motor Vehicles, Parts, and Supplies</i> (SIC 501)	0.7
<i>Manufacture of Animal and Marine Fats and Oils</i> (SIC 2077)	0.7
<i>Camps and Recreational Vehicle Parks</i> (SIC 703)	0.6

By comparison, the average illness IR for all private industry was 0.6 per 100 full-time employees. The highest numbers of illness cases occurred among workers in the following small business industries:

	<i>Number</i>
<i>Eating and Drinking Establishments</i> (SIC 581)	13,600
<i>Offices and Clinics of Medical Doctors</i> (SIC 801)	5,200
<i>Motor Vehicles, Parts, and Supplies</i> (SIC 501)	2,900
<i>General Contractors and Operative Builders</i> (SIC 15)	2,000
<i>Real Estate Operators and Lessors</i> (SIC 651)	1,500

Fatal occupational injury cases were examined as a measure of the most severe consequences of exposure to occupational hazards. For fatal occupational injuries, the highest IRs (per 100,000 full-time workers) occurred among employees involved with the following small business industries:

	<i>IR</i>
<i>Taxicabs</i> (SIC 412)	324
<i>Trucking Terminal Facilities</i> (SIC 423)	>159 [†]
<i>Soil Preparation Services</i> (SIC 071)	115
<i>Logging</i> (SIC 241)	108
<i>Cut Stone and Stone Products</i> (SIC 328)	49.6

These rates were more than 10 times the average fatal occupational injury rate for all private industry (4.8 deaths per 100,000 workers), and all small business industries in the top quartile exceeded this rate. The greatest numbers of fatalities occurred among the following small business industries:

	<i>Number</i>
<i>General Contractors and Operative Builders</i> (SIC 15)	161
<i>Miscellaneous Special Trade Contractors</i> (SIC 179)	158
<i>Employees in Eating Places</i> (SIC 5812)	98
<i>Logging</i> (SIC 241)	91
<i>Taxicab Drivers</i> (SIC 412)	86

[†] > indicates uncertainty about the employment total for the industry, resulting in a conservative IR.

The leading causes of fatal occupational injuries among various small business industries were as follows:

<i>Cause of fatal injury</i>	<i>Number of small business industries in which it is a leading cause</i>	<i>Comment</i>
Transportation incidents	26	This trend persists for all private industry.
Assaults and violent acts	17	Primarily retail service industries.
Contact with objects and equipment . . .	6	Construction, specialty trades, logging, mining.
Falls	6	Primarily construction industries.
Exposure to harmful substances and environments	1	Manufacture of Wood Containers (SIC 244); also associated with deaths in 15 other small business industries.

When morbidity and mortality measures are combined into a single index, the highest-risk small business industries include the following:

- Logging (SIC 241)*
- Cut Stone and Stone Products (SIC 328)*
- Trucking Terminal Facilities (SIC 423)*
- Roofing, Siding, and Sheet Metal Work (SIC 176)*
- Camps and Recreational Vehicle Parks (SIC 703)*

A brief discussion of each small business industry is included in the Appendix. The purpose of this discussion is to provide an understanding of the activities involved with each small business industry and possible factors that may contribute to the occupational injury and illness experience.

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Abbreviations

BLS	U.S. Bureau of Labor Statistics
CFOI	Census of Fatal Occupational Injuries
hr	hour(s)
IR	incidence rate
MSHA	Mine Safety and Health Administration
NAICS	North American Industry Classification System
NEC	not elsewhere classified
NIOSH	National Institute for Occupational Safety and Health
NOES	National Occupational Exposure Survey
NSC	National Safety Council
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
SAFE	Safety Actions for Europe
SBA	U.S. Small Business Administration
SIC	Standard Industrial Classification
SOII	Survey of Occupational Injuries and Illnesses

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1

Introduction

The consequences of occupational injuries and illnesses are significant. In addition to causing pain, suffering, and loss of productivity for affected employees and their families, occupational injuries and illnesses exact a hefty toll on U.S. industry.

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Introduction

Objectives

More than half (56%) of the U.S. workforce in private industry is employed in business establishments with fewer than 100 employees [Bureau of the Census 1997; Wiatrowski 1994]. Of all U.S. private industry establishments, 98% employ fewer than 100 employees, and more than 87% employ fewer than 20 employees. Prevention of occupational injury and illness is often difficult in these establishments because small businesses generally have few safety and health resources, cannot usually hire staff devoted to safety and health activities, and often lack the ability to identify occupational hazards and conduct surveillance [Wiatrowski 1994; edersen and Sieber 1988]. The National Institute for Occupational Safety and Health (NIOSH) recognizes these special challenges to safety and health in small business establishments. As a result, this investigation was conducted to characterize the risk of occupational injury, illness, and fatality associated with industries composed mostly of small business establishments. The three primary objectives of this investigation were as follows:

1. To identify standard industrial classification (SIC) codes meeting the definition of a small business industry
2. To identify the top 25% of the highest-risk small business industries by ranking them according to total cases and incidence rates (IRs) of occupational injuries, illnesses, and fatalities
3. To identify the top 25% of the highest-risk small business industries by ranking them according to a combined risk index (achieved by combining data on injuries, illnesses, and fatalities).

Ranking small business industries on the basis of occupational injury, illness, and fatality data should prove useful to a broad audience, including occupational safety and health practitioners, the small business community (owners, managers, and employees), labor officials, trade associations, product suppliers, and local and State health agencies. This document is especially intended for identifying high-risk small business industries that may warrant further investigation, additional hazard characterization, or risk assessment. Ultimately, this information is intended to promote prevention activities targeting industries with the greatest need.

Small business industries are those with SIC codes in which at least 80% of the employees work in business establishments with fewer than 100 workers.

Background

As stated, 56% of the U.S. workforce in private industry is employed in business establishments with fewer than 100 employees [Bureau of the Census 1997; Wiatrowski 1994]. In 1994 in the United States, 6.5 million private industry establishments were operating, and they employed more than 96.7 million employees [Bureau of the Census 1997]. These private industry establishments represent all major divisions of the economy except self-employed persons, domestic service employees, railroad employees, agricultural production workers, most government employees, and employees in oceanborne vessels in foreign countries.

Of all private industry establishments operating in 1994 in the United States, 98% (6.38 million) employed fewer than 100 employees, and more than 87% (5.66 million) employed fewer than 20 workers. Table 1 shows the number and percentage of employees in establishments with fewer than 100, 20, and 10 employees in 1994.

These statistics are given in terms of business establishments—not companies. An establishment is an individual business location such as a fast-food restaurant. In contrast, a company consists of all establishments under common ownership or control, such as a chain of fast-food restaurants owned by a single employer. The Bureau of the Census [1998] reports that the 6.5 million private establishments operating in the United States in 1994 were owned by 5.3 million companies. This figure indicates that most companies own only a single establishment, but multi-establishment companies may have a disproportionate impact. Although 56% of the U.S. private workforce is employed by establishments with fewer than 100 employees, only 38% is employed by *companies* with fewer than 100 employees [Bureau of the Census 1997].

Statistics about establishment size are generally the most appropriate for this report, since regulations and guidelines usually apply to individual establishments at a given business location. When we refer to resources available to an employer, company size might be more relevant. This distinction is important when comparing statistics from different agencies. For example, the U.S. Small Business Administration (SBA) defines small business in terms of company size, not establishment size.

Targeting Small Business Industry

Small business establishments (those with fewer than 100 employees at a single business location) are found in all industrial segments. Occupational safety and health prevention activities (including inspections and other enforcement strategies of the Occupational Safety and Health Administration [OSHA]) have often focused on the 2% of private industry establishments with 100 or more employees—though the agency has established a number of programs designed to provide consultation and other services specifically to small businesses [DOL 1993, 1996]. As noted earlier, small business establishments generally have few safety and

TABLE 1.**Number and percentage of employees in establishments with fewer than 100, 20, and 10 employees, by industry division in 1994**

Industry division	Number of employees*	<100 employees		<20 employees		<10 employees	
		Number	%	Number	%	Number	%
Agriculture [†]	551,507	478,147	87	336,800	61	215,612	39
Mining	607,721	>272,655	>45 [‡]	>100,747	>17 [‡]	>47,306	>8 [‡]
Construction	4,709,379	3,716,851	79	2,150,840	46	1,336,954	28
Manufacturing	18,098,123	5,393,542	30	1,501,576	8	684,653	4
Transportation, communications, and public utilities	5,713,515	2,637,978	46	1,024,351	18	551,853	10
Wholesale trade	6,365,973	4,681,038	74	2,254,753	35	1,193,682	19
Retail trade	20,320,266	15,457,780	76	6,929,207	34	3,770,063	19
Finance, insurance, and real estate	7,002,431	4,149,983	59	2,262,835	32	1,388,866	20
Services	33,253,032	16,616,313	50	8,726,606	26	5,370,812	16
Total	96,733,300	>53,404,287	>55 [‡]	>25,287,715	>26 [‡]	>14,559,801	>15 [‡]

Source: Bureau of the Census *County Business Patterns 1994*.

*Includes salary and wage-earning employees in all private industry.

[†]Agricultural services only (SIC 07).

[‡]Indicates that it was not possible to determine the exact percentages in all size categories, as employment information is routinely withheld from *County Business Patterns* (CBP) data by the Bureau of the Census to assure confidentiality of operations for some establishments. It was still possible to calculate at least the minimum percentages of workers in the desired categories for every industry.

health resources, few if any staff devoted to safety and health activities, and limited ability to identify occupational hazards and conduct surveillance [Wiatrowski 1994; edersen and Sieber 1988]. Because more than 98% (6.3 of the approximately 6.5 million) of the private industry establishments operating in the United States are classified as small business establishments, it is difficult to determine where best to use limited Federal, State, and local resources available for occupational safety and health. Thus a decision was made to target small business industries—that is, those with SIC codes in which 80% of the employees work in business establishments with fewer than 100 employees.

Employers, employees, and insurers involved with small businesses can all benefit from a heightened awareness of the risks and hazards within various small business industries. Other accounts have noted that providing this information (possibly in the form of industry report cards) would spur market-adjusting forces to reduce injuries and illnesses as employees are made aware of risks and as employers strive to provide safer workplaces or pay a higher compensating wage [Schroeder and Shapiro 1984; Leigh 1998]. This report focuses on identifying high-risk small business industries using national injury, illness, and fatality data (both total cases and IRs).

Incidence of Injuries, Illnesses, and Fatalities

According to the U.S. Bureau of Labor Statistics (BLS), the incidence of nonfatal work-related injuries and illnesses in private industry fell in 1995 to the lowest rate this decade, continuing a 3-year decline in these rates [BLS 1997a]. A total of 6.6 million work-related injuries and illnesses were reported during 1995. This figure translates into an average rate for all private industry of 8.1 cases per 100 full-time equivalent workers (i.e., per 200,000 hr, based on 40 hr per week for 50 weeks per year per worker), compared with a high of 8.9 cases per 100 full-time equivalent workers in 1992. Although this trend is encouraging, nearly 6.1 million injuries alone in 1995 resulted in lost work time, medical treatment other than first aid, loss of consciousness, restriction of work or motion, or transfer to another job. An estimated half million occupational illnesses occurred in 1995. However, this estimate is uncertain, as it is generally more difficult to determine whether an illness is work-related. Therefore, occupational illnesses tend to be underreported. Work-related fatalities in private industry totaled 5,495 in 1995 and 5,521 in 1996 [BLS 1997b]. These figures also indicate that serious hazards are still associated with many workplaces.

Consequences of Occupational Injuries and Illnesses

The consequences of occupational injuries and illnesses are significant. In addition to causing pain, suffering, and loss of productivity for affected employees and their families, occupational injuries and illnesses exact a hefty toll on U.S. industry. The National Safety Council (NSC) estimates that occupational injuries and fatalities in the United States in 1996 cost \$121 billion, or \$790,000 per death and \$26,000

per disabling injury [NSC 1997]. These data do not include costs associated with occupational illness. Another study places employers' costs of occupational injuries alone at \$155 billion annually (in December 1990 dollars) [Miller 1997]. Leigh et al. [1997] estimate the total annual costs of occupational injuries, illness, and fatalities in the United States to be greater than \$170 billion in 1992, noting that these estimates are conservative because (1) they ignore costs associated with pain and suffering and home care provided by family members and (2) the numbers of work-related injuries and illnesses are likely to be undercounted. Under-reporting of occupational injuries and illnesses, especially among small business establishments, has been recognized as a major source of bias in the Federal statistics [Mendeloff and Kagey 1990; Nelson et al. 1992; Oleinick et al. 1995; Murphy et al. 1996; Leigh et al. 1997; Leigh and Miller 1998a].

Occupational Health Services Provided by Small Businesses

Over the last half century, devising strategies to provide a safe workplace and to protect the health of workers have been common goals of government agencies, labor organizations, and industry groups. Providing for the safety and health of workers was identified as a priority in a 1965 report to the U.S. Surgeon General entitled *Protecting the Health of Eighty Million Americans A National Goal for Occupational Health* [DHEW 1966]. The report recognized that with a few exceptions, minimal or no occupational health surveillance or services were provided by small business establishments—a fact that was later verified by the National Occupational Exposure Survey (NOES) [Pedersen and Sieber 1988]. Significant differences found by NOES between small business establishments (8 to 99 employees) and large ones (500 or more employees) include the percentage of establishments that provide the following:

	<i>Small establishments ()</i>	<i>Large establishments ()</i>
On-site occupational health units:		
With a physician in charge	0.1	30
With a staff person in charge	1.9	78
One or more medical screening tests		
for all employees	6	54
replacement physicals	21	82
Industrial hygiene or safety personnel	2	59
Industrial hygiene consultants	14	56

OSHA conducted a similar but broader survey of more than 7,000 establishments in 1990 [ORA 1993]. They determined that of 5.3 million establishments with 85 million employees, only 6.3% had a medical surveillance program. The category of smallest business establishments (1 to 19 employees) had the fewest establishments with a medical surveillance program (3.8 %), followed by those with 20 to

99 employees (14.4%), those with 100 to 249 employees (33.4%), and those with 250 or more employees (55.8%).

Strategies for Increasing Occupational Health Services

Recognizing occupational safety and health challenges for small businesses is an important first step toward determining effective strategies for addressing these concerns. In drafting the national public health agenda published in *Healthy People 2000 National Health Promotion and Disease Prevention Objectives* [DHHS 1990], the U.S. Department of Health and Human Services expressed the need to “establish in 50 States either public health or labor department programs that provide consultation and assistance to small businesses to implement safety and health programs for their employees.”

On an international level, the importance of setting safety and health priorities for small businesses has also been recognized. Within the European Union, increasing emphasis is being placed on providing education, training, and additional support to small and medium-sized enterprises for improving the recognition, communication, and prevention of hazards in these establishments [Hunter et al. 1995]. Rather than introducing legislation and enforcing regulations, the European Commission for a Fourth European Union Action Programme on Safety, Hygiene, and Health at Work has focused on information campaigns for small and medium-sized enterprises in a program called Safety Actions for Europe (SAFE) [Rogers 1995].

More than 30 years ago, the Surgeon General suggested that to provide occupational health services, health surveillance, and industrial hygiene and safety support to small business establishments, occupational safety and health programs should be established at the local level in county and city health departments [DHEW 1966]. Despite this recommendation, a 1992–93 survey conducted by the National Association of County and City Health Officials found that only 20% of local health departments provided occupational safety and health services directly; 4% did so by contract, and 76% provided no occupational safety and health services [NACCHO 1995].

Although the report to the Surgeon General focused on providing workers with occupational health services, others have addressed small business establishment owners, operators, and franchise managers [Finch 1977; Frazis et al. 1995; Personick and Windau 1995; Tuskes and Key 1988; Wiatrowski 1994]. In 1984, OSHA established a program to consult with employers about establishing effective occupational safety and health programs [29 CFR 1908]. The program is active in all 50 States and emphasizes businesses with the most hazardous operations. Primary attention is given to smaller businesses (i.e., those with fewer than 250 workers). The OSHA Targeted Training Program (recently renamed the Susan Harwood Training Grant Program) provides grants for safety and health training

Code of Federal Regulations. See CFR in references.

programs in small businesses and for specialized training in ergonomics, scaffolding, and workplace violence [OSHA 1997]. To reduce the burden of regulatory compliance for small businesses, the Small Business Regulatory Enforcement Fairness Act of 1996 requires Federal agencies to help small businesses comply with government regulations and to develop policies that reduce or eliminate fines for small businesses. In implementing the statutes of the Act, the U.S. Department of Labor reported that 88% of small businesses fined by OSHA between March and December 1997 had fines reduced by a total of \$110 million [AIHA 1998].

2

Defining and Identifying Small Business Industries

*Ninety-eight percent of all private industry workplaces
met the definition of small business establishments.*

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Defining and Identifying Small Business Industries

Small Business Establishments

Definitions for small business establishments vary slightly among agencies, as shown in Table 2. The U.S. Office of Management and Budget (OMB) defines an establishment as “an economic unit, generally at a single physical location, where business is conducted or where services or industrial operations are performed” [OMB 1987]. The BLS recognizes small business establishments in one citation as those having fewer than 100 employees [Wiatrowski 1994] and in another as those having fewer than 50 employees [BLS 1997c]. NOES defines small business establishments as those having fewer than 100 employees [Pedersen and Sieber 1988], whereas the OSHA Susan Harwood Training Grants Program defines them as those having 250 or fewer employees.

The SBA defines a business on the basis of company* size (i.e., the number of employees or the maximum annual revenue) to determine its eligibility for Federal assistance. Employment totals are used to determine eligibility in the following classifications: mining (fewer than 500 employees); manufacturing (fewer than 500 to 1,000 employees, depending on the industry); transportation and public utilities (fewer than 500 to 1,500 employees, depending on the industry); and wholesale trade (fewer than 100 employees) [SBA 1997].

In this report, a small business establishment is considered a regional or branch office, storage facility, family-operated store, or any other business with fewer than 100 employees at a single site. Special trade contractors such as carpenters would also meet this definition when operating as a distinct economic unit with fewer than 100 employees at a single site.

Description of the County Business Patterns 1994

The number of small business establishments and the number of employees who work in these establishments were obtained from the *County Business Patterns 1994* [Bureau of the Census 1996]. These data are compiled annually by the U.S. Bureau of the Census. Data in the *County Business Patterns* series are presented by industry as defined in the *Standard Industrial Classification Manual:1987* [OMB 1987]. All major economic divisions within private industry are represented in

*A company is all business establishments under a common ownership.

TABLE 2.**Definitions of small business establishments cited in the literature**

Agency/source	Definition of small business establishments
BLS [Wiatrowski 1994]	–100 employees (per establishment)
BLS [1997c]	In the 1995 SOI [*] : –50 employees (per establishment)
NIOSH [Pedersen and Sieber 1988]	For the <i>National Occupational Exposure Survey</i> : –100 employees (per establishment)
OSHA [1997]	For the <i>OSHA Susan Harwood Training Grant Program</i> : ~250 employees (per establishment)
SBA [1997]	<p>To determine the eligibility of small business establishments for federal assistance, definitions vary by SIC code and are established as a maximum number of employees or millions of dollars in annual revenue per company as follows:</p> <ul style="list-style-type: none"> – Agriculture [SIC 0111–0971]: ranges from \$0.5 to \$5 million, depending on specific industry – Mining [SIC 1011–1499]: 500 employees or \$5 million, depending on specific industry – Construction Trades [SIC 1521–1799]: ranges from \$7 to \$17 million, depending on specific industry – Manufacturing [SIC 2011–3999]: ranges from 500 to 1,000 workers, depending on specific industry – Transportation and Public Utilities [SIC 4011–4971]: ranges from 500 to 1,500 employees or \$5 to \$25 million, depending on specific industry – Wholesale Trade [SIC 5012–5199]: 100 employees – Retail trade [SIC 5211–5999]: ranges from \$5 to \$21 million, depending on specific industry – Finance, Insurance, Real Estate [SIC 6021–6799]: ranges from \$5 to \$15 million in annual revenue, or \$100 million in assets, depending on specific industry – Services [SIC 7011–8999]: ranges from \$5 to \$21.5 million, depending on specific industry – Nonclassifiable establishments [SIC 9999]: \$5 million

^{*}Survey of Occupational Injuries and Illnesses [BLS 1997c].

County Business Patterns, although the series does not include data on self-employed persons, domestic service employees, railroad employees, agricultural production workers, most government employees, and employees on oceanborne vessels in foreign countries.

According to the *County Business Patterns 1994* [Bureau of the Census 1996], all private industry for that year consisted of 6.5 million establishments with 96.7 million employees. Allowing that small business establishments are those with fewer than 100 employees,

- more than 6.3 million small business establishments employed 53 million employees in private industry in 1994,
- 98% of all private industry workplaces met the definition of small business establishments, and
- 56% of the entire U.S. workforce in private industry was employed in such establishments [Bureau of the Census 1996].

SIC Codes

The U.S. Government SIC codes group business establishments by the type of activity they perform or the product they manufacture [OMB 1987]. This multi-layer system proceeds from general industrial groupings (divisions) to specific industries. The 11 major industrial divisions include the following:

- Division A—*Agriculture, Forestry, and Fishing* (SIC 01–09)
- Division B—*Mining* (SIC 10–14)
- Division C—*Construction* (SIC 15–17)
- Division D—*Manufacturing* (SIC 20–39)
- Division E—*Transportation, Communications, and Public Utilities* (SIC 40–49)
- Division F—*Wholesale Trade* (SIC 50–51)
- Division G—*Retail Trade* (SIC 52–59)
- Division H—*Finance, Insurance, and Real Estate* (SIC 60–67)
- Division I—*Services* (SIC 70–89)
- Division J—*Public Administration* (SIC 91–97)
- Division K—*Nonclassifiable Establishments* (SIC 99)

The broad division categories (e.g., Division B, *Mining*) are divided into (1) major groups with two-digit codes (e.g., Major Group 14, *Mining and Quarrying of Non-metallic Minerals Except Fuels*), (2) industry groups with three-digit codes (e.g., SIC 142, *Crushed and Broken Stone*), and (3) individual industries with four-digit codes (e.g., SIC 1422, *Crushed and Broken Limestone*). Activities or products associated with business establishments are most similar for establishments in the same four-digit SIC code. At this level, hazards and their effects are most likely to be similar among establishments. Preventive measures are also more likely to be

generally applicable to the establishments classified together at the four-digit level. However, within some four-digit classifications, the types of activities performed are still significantly variable. An example of this variability occurs in SIC code 7539, *Automobile Repair Shops*, not elsewhere classified (NEC). This four-digit SIC code includes radiator repair shops as well as frame repair and automotive electrical repair.

OMB has developed a new classification system that will replace the SIC codes. The manual for the *North American Industry Classification System (NAICS)—United States, 1997* [OMB 1998] was released in 1998. The NAICS uses a six-digit classification code that allows for greater flexibility in the coding structure compared with the four-digit SIC codes. The new system also provides more detail for newly developed service industries such as information services, health care provision, and high-tech manufacturing at the most basic level of industrial aggregation [Murphy 1998]. However, the transition from SIC codes to NAICS is expected to be difficult and is only in the initial stages. Therefore, data used for this investigation are limited to the four-digit SIC level and in many cases are available only at the three-digit SIC level.

In the *County Business Patterns* data as well as in the occupational injury, illness, and fatality data prepared by the BLS, data are not consistently available for each of the more than 900 four-digit SICs. Often data are available only at the three-digit level and occasionally at the two-digit level. The BLS annual *Survey of Occupational Injuries and Illnesses* (SOII) [BLS 1997c] is designed to provide information at the four-digit SIC level for manufacturing industries only and at the three-digit SIC level for all other industries. Despite the decreasing specificity of activities and hazards at the three-digit SIC level, occupational injury, illness, and fatality data for certain three-digit codes may nevertheless be important for this investigation when information at the four-digit level is lacking.

Criterion for Small Business Industries

Small business establishments (those with fewer than 100 employees) are more prominent in some industry divisions than others (Table 1). Among the major industrial divisions, *Services* (SIC 70–89), *Retail Trade* (SIC 52–59), and *Manufacturing* (SIC 20–39) have the greatest numbers of employees in establishments with fewer than 100 employees (33.2 million, 20.3 million, and 18 million workers, respectively). *Agriculture* (SIC 01–09) (87%), *Construction* (SIC 15–17) (79%), *Retail Trade* (SIC 52–59) (76%), and *Wholesale Trade* (SIC 50–51) (74%) have the highest percentages of employees in small business establishments.

Although the figures in Table 1 demonstrate that small business establishments exist in all major industry groups, this report distinguishes between a small business establishment and a small business industry. To identify industries that consist predominantly of small business establishments, small business industries were defined as *those with SIC codes in which at least 80% of the employees work in establishments with fewer than 100 employees*. The concept of a small business

industry was used to help provide information about industrial segments consisting primarily of small business establishments and to determine which of these may be in greatest need of occupational safety and health prevention activities. By convention, 100 employees was used as the cut-off for defining small business establishments—as previously established for NIOSH surveillance projects (Table 2). Many of the small business establishments with fewer than 100 employees are also much smaller, with fewer than 20 or even 10 employees. Small business establishments exist in all industries, but the intent of this investigation is to identify industries that are predominantly composed of small business establishments. Somewhat more arbitrary was the decision to limit small business industries to industries with SIC codes in which at least 80% (versus 70%, 75%, or 90%) of the employees work in establishments with fewer than 100 employees. Although choosing one of the latter numbers might have excluded some SIC codes or included others, it is unlikely that it would have had much influence on which small business industries were identified using this criterion. Ultimately, 253 SIC codes were identified as small business industries from a total of 936 four-digit SIC codes.

3

Small Business Industries and Related Measures of Risk

The 253 small business industries that meet the criterion for a small business industry consist of nearly 4 million establishments with more than 30 million employees.

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BLS Survey of Occupational Injuries and Illnesses (SOII)	34
BLS Census of Fatal Occupational Injuries (CFOI).	35
Injury, Illness, and Fatality Statistics for All Small Business Industries	36

Small Business Industries and Related Measures of Risk

Small Business Industries

Data for all SIC codes listed in the *County Business Patterns 1994* [Bureau of the Census 1996] were examined to identify industries meeting the criterion for a small business industry. Of 253 SIC categories determined to be small business industries, 1 was identified at the two-digit SIC level, 102 at the three-digit level, and 150 at the four-digit level. Of the 150 at the four-digit level, 96 were contained within a broader three-digit small business industry, which was also identified. Each of the SIC codes identified as a small business industry is described in the Appendix of this report. These 253 small business industries consist of nearly 4 million establishments with more than 30 million employees. They represent 62% of all private industry establishments and 33% of all private industry employees. The distribution of these 253 small business industries by major industry division is as follows:

	<i>Number of industries</i>
Division A— <i>Agriculture</i> (SIC 01–09)	4
Division B— <i>Mining</i> (SIC 10–14)	10
Division C— <i>Construction</i> (SIC 15–17)	17
Division D— <i>Manufacturing</i> (SIC 20–39)	21
Division E— <i>Transportation, Communications, and Public Utilities</i> (SIC 40–49)	12
Division F— <i>Wholesale Trade</i> (SIC 50–51)	45
Division G— <i>Retail Trade</i> (SIC 52–59)	61
Division H— <i>Finance, Insurance, and Real Estate</i> (SIC 60–67)	8
Division I— <i>Services</i> (SIC 70–89)	75

Table 1 lists the number and percentage of employees in establishments with fewer than 100, 20, and 10 employees, by major industry division. Table 3 lists the number and percentage of employees in the 253 identified small business industries who are in establishments with fewer than 100, 20, and 10 employees. In some cases it was not possible to determine the exact percentages in specific size categories, as employment information is routinely withheld from *County Business Patterns* data by the Bureau of the Census to assure confidentiality of operations for some establishments. For these industries, it was still possible to calculate the minimum percentages of employees in the desired categories. For example, at

TABLE 3.

Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
All private industry	—	6,509,276	96,733,300	>55 [†]	>26	>15
Division A, Agriculture [SIC 07 only]:						
Soil preparation services	071	630	4,339	>81	53	35
Veterinary services	074	21,549	153,309	>98	80	44
Animal services, except veterinary	075	9,375	39,241	>91	71	54
Landscape and horticultural services	078	62,228	294,854	85	56	39
Division B, Mining [SIC 10-14]:						
Uranium-radium-vanadium ores	1094	57	1,023	>94	>16	>7
Natural gas liquids	132	627	14,288	>78	>19	>6
Dimension stone	141	196	1,475	>87	>52	28
Crushed and broken stone	142 [‡]	2,001	37,644	>83	>30	>8
Crushed and broken limestone	1422	1,316	24,312	>84	>31	>8
Crushed and broken granite	1423	238	5,180	>89	>24	>3
Sand and gravel	144 [‡]	2,459	28,552	>91	45	21
Construction sand and gravel	1442	2,295	25,501	>91	>44	>19
Industrial sand	1446	148	2,872	>90	>21	>8
Nonmetallic mineral services, except fuels	148	143	1,618	>80	>37	>17
Division C, Construction [SIC 15-17]:						
General contractors and operative builders	15 [‡]	187,470	1,134,095	81	52	35
Plumbing, heating, and air conditioning	171	79,636	645,621	83	49	29
Painting and paper hanging	172	34,627	160,160	92	63	43
Masonry, stonework, and plastering	174 [‡]	48,960	397,536	82	44	27
Masonry, stone setting, and other stone work	1741	23,550	144,400	88	56	36

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division C, Construction [SIC 15-17] (Continued):						
Terrazzo, tile, marble, and mosaic work	1743	5,882	31,319	96	61	40
Carpentry and floor work	175 [†]	49,464	230,154	90	65	45
Carpentry work	1751	37,468	178,713	88	64	45
Floor laying and other floor work, NEC [§]	1752	10,652	50,223	96	66	45
Roofing, siding, and sheet metal work	176	28,420	215,608	90	49	25
Concrete work	177	26,911	188,941	89	53	32
Water well drilling	178	3,672	18,816	97	73	50
Miscellaneous special trade contractors	179 [†]	60,768	477,190	83	48	28
Glass and glazing work	1793	4,529	31,997	97	67	38
Excavation work	1794	18,768	93,383	94	66	44
Wrecking and demolition work	1795	945	11,615	82	>32	>14
Special trade contractors, NEC	1799	27,869	214,386	82	49	29
Division D, Manufacturing [SIC 20-39]:						
Prepared feeds and feed ingredients for animals and fowls, except dogs and cats	2048	1,702	35,110	>81	>24	>8
Animal and marine fats and oils	2077	253	8,366	100	>7	>3
Manufactured ice	2097	552	4,454	100	60	27
Fur goods	237	161	686	>80	66	46
Logging	241	13,962	84,624	93	67	42
Special products sawmills, NEC	2429	177	1,714	100	>40	>19
Wood containers	244 [†]	2,546	42,069	>84	>28	>12
Nailed and lock corner wood boxes and shook	2441	299	5,152	92	31	12
Wood pallets and skids	2448	2,009	31,920	>88	>30	>10

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division D, Manufacturing [SIC 20-39] (Continued):						
Wood preserving	2491	474	11,218	85	16	7
Industrial gases	2813	600	7,789	92	31	16
Fertilizers, mixing only	2875	458	7,400	85	32	13
Printing ink	2893	518	12,262	87	21	7
Asphalt paving mixtures and blocks	2951	1,073	11,065	92	43	28
Concrete, gypsum, and plaster products	327 [†]	9,350	173,474	81	29	10
Concrete block and brick	3271	952	15,978	>93	>32	>9
Ready-mixed concrete	3273	5,058	81,214	90	35	12
Cut stone and stone products	328	931	12,097	>80	38	17
Industrial patterns	3543	651	7,824	>82	>41	>19
Industrial and commercial machinery and equipment, NEC	3599	23,073	271,999	86	40	20
Marking devices	3953	623	8,077	80	36	20
Division E, Transportation, communications, and public utilities [SIC 40-49]:						
Taxicabs	412	3,378	26,516	81	43	24
Bus charter service, except local	4142	885	18,106	>81	>19	>7
Bus terminal and service facilities	417	35	182	100	>63	36
Farm product warehousing and storage	4221	567	6,052	>81	>44	>19
Trucking terminal facilities	423	52	533	80	>24	>14
Ferries	4482	117	1,606	>80	>28	>14
Marinas	4493	3,763	18,496	99	73	47
Pipelines, NEC	4619	59	264	100	>73	>47
Passenger transportation arrangement	472 [†]	32,160	207,423	81	59	43

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division E, Transportation, communications, and public utilities [SIC 40-49] (Continued):						
Travel agencies	4724	28,118	162,795	87	66	49
Freight transportation arrangement	473	13,388	117,767	86	47	28
Irrigation systems	497	325	1,673	>80	59	38
Division F, Wholesale trade [SIC 50-51]:						
Motor vehicles, parts, and supplies	501 [†]	46,423	504,484	84	45	24
Motor vehicle supplies and new parts	5013	27,140	274,902	87	52	28
Tires and tubes	5014	3,930	47,053	92	50	21
Motor vehicle parts, used	5015	6,976	42,485	98	76	48
Furniture and home furnishings	502 [†]	16,267	169,461	82	39	21
Furniture	5021	7,197	72,037	86	40	21
Home furnishings	5023	8,824	97,024	80	39	21
Lumber and construction materials	503 [‡]	20,473	232,555	>86	>39	>17
Lumber, plywood, millwork, and wood panels	5031	8,604	122,835	>84	>29	>12
Brick, stone, and related construction materials	5032	4,618	35,532	97	63	35
Roofing, siding, and insulation materials	5033	2,902	33,514	>89	>46	>18
Construction materials, NEC	5039	3,982	39,930	88	49	24
Commercial equipment, NEC	5046	5,039	45,117	88	52	28
Metals and minerals, except petroleum	505 [‡]	11,137	144,449	81	33	17
Metals service centers and offices	5051	10,246	138,724	81	32	16
Coal and other minerals and ores	5052	766	5,557	>89	>50	34
Electrical apparatus and equipment, wiring supplies, and construction materials	5063	18,264	195,300	91	47	24

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division F, Wholesale trade [SIC 50-51] (Continued):						
Hardware, plumbing, and heating equipment	507 [†]	24,808	254,822	87	48	26
Plumbing and hydronic heating supplies	5074	9,341	92,224	93	54	27
Warm-air heating and air-conditioning equipment and supplies	5075	5,506	49,661	92	54	31
Refrigeration equipment and supplies	5078	1,421	12,152	>88	>49	>28
Machinery, equipment, and supplies	508 [†]	73,344	707,226	88	50	26
Farm and garden machinery and equipment	5083	10,280	103,375	96	59	25
Industrial machinery and equipment	5084	29,854	268,073	89	49	28
Industrial supplies	5085	15,678	153,968	91	53	28
Service establishment equipment and supplies	5087	7,392	65,316	>84	>45	>24
Sporting and recreational goods and supplies	5091	5,730	56,056	82	43	24
Scrap and waste materials	5093	9,079	102,395	88	39	19
Industrial and personal service paper	5113	5,388	67,972	80	36	18
Piece goods, notions, and other dry goods	5131	5,827	52,100	84	45	25
Fish and seafoods	5146	3,223	29,511	>85	>38	>20
Farm-product raw materials	515 [‡]	11,142	104,274	>91	>47	>23
Grain and field beans	5153	6,960	58,117	98	67	36
Livestock	5154	2,372	31,127	99	30	13
Farm-product raw materials, NEC	5159	1,717	14,688	>80	43	26
Chemicals and allied products	516 [‡]	14,436	150,985	85	44	22
Plastic materials and basic forms and shapes	5162	3,524	35,112	>86	>42	>19
Chemicals and allied products, NEC	5169	10,695	115,680	83	42	22
Petroleum and petroleum products	517 [†]	14,636	162,814	>84	>43	>19
Petroleum bulk stations and terminals	5171	10,562	124,661	91	47	22

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division F, Wholesale trade [SIC 50-51] (Continued):						
Petroleum and petroleum products wholesalers, except bulk stations and terminals	5172	3,864	37,663	>80	>40	>20
Farm supplies	5191	16,835	145,383	>80	60	33
Flowers, nursery stock, and florists' supplies	5193	4,277	47,618	86	41	20
Paints, varnishes, and supplies	5198	3,544	29,051	86	60	39
Nondurable goods, NEC	5199	17,778	117,097	82	50	32
Division G, Retail trade [SIC 52-59]:						
Paint, glass, and wallpaper stores	523	10,081	47,939	100	90	70
Hardware stores	525	18,227	140,019	98	66	37
Retail nurseries, lawn/garden supply stores	526	11,017	72,757	98	67	38
Mobile home dealers	527	4,294	28,632	>92	>70	>39
Variety stores	533	13,197	106,709	>95	67	43
Meat and fish (seafood) markets, including freezer provisioners	542	8,480	44,536	95	74	49
Fruit and vegetable markets	543	3,108	17,268	>91	56	35
Candy, nut, and confectionery stores	544	4,940	27,829	>99	87	59
Dairy products stores	545	2,338	8,967	100	>82	61
Miscellaneous food stores	549	9,316	46,362	>97	78	53
Motor vehicle dealers (used only)	552	19,569	72,847	>98	84	64
Auto and home supply stores	553	41,338	294,733	99	78	43
Gasoline service stations	554	99,250	692,240	>96	82	50
Boat dealers	555	4,778	28,925	100	78	45
Recreational vehicle dealers	556	2,850	25,593	97	56	29

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division G, Retail trade [SIC 52-59] (Continued):						
Motorcycle dealers	557	3,605	24,984	>98	78	41
Automotive dealers, NEC	559	936	4,357	100	>69	>42
Men's and boys' clothing/accessory stores	561	14,646	106,542	98	76	47
Women's clothing stores	562	47,715	419,793	95	67	34
Women's accessories and specialty stores	563	8,291	45,485	98	90	60
Children's and infants' wear stores	564	5,264	38,368	97	64	36
Shoe stores	566	34,795	184,533	99	91	71
Miscellaneous apparel and accessory stores	569	9,458	47,451	98	79	51
Furniture and home furnishings stores	571 [†]	66,783	451,368	94	67	41
Furniture stores	5712	32,828	252,493	92	61	35
Floor covering stores	5713	14,165	72,792	>98	80	54
Drapery, curtain, and upholstery stores	5714	2,670	10,867	100	>83	64
Miscellaneous home furnishings stores	5719	16,813	114,772	95	70	43
Household appliance stores	572	9,642	60,676	87	65	43
Radio, television, and computer stores	573 [‡]	37,496	277,437	94	60	41
Radio, television, and consumer electronics stores	5731	16,901	135,170	92	54	39
Computer and computer software stores	5734	7,479	47,635	>85	>54	>38
Record and prerecorded tape stores	5735	8,714	69,209	98	68	42
Musical instrument stores	5736	4,138	24,916	>89	>63	37
Eating and drinking places	581 [†]	449,089	6,928,226	91	28	11
Eating places	5812	367,205	6,476,992	91	25	10
Drinking places	5813	52,874	310,238	95	64	43
Drug stores and proprietary stores	591	45,676	583,486	98	49	19

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division G, Retail trade [SIC 52-59] (Continued):						
Liquor stores	592	29,554	128,727	99	88	66
Used merchandise stores	593	21,622	111,719	95	69	47
Miscellaneous shopping goods stores	594 [‡]	126,594	785,116	96	71	45
Sporting goods stores and bicycle shops	5941	24,456	157,121	96	62	37
Book stores	5942	13,520	102,380	92	66	38
Stationery stores	5943	4,179	23,081	>97	76	50
Jewelry stores	5944	26,995	141,748	95	86	62
Hobby, toy, and game shops	5945	10,402	93,976	97	39	26
Camera and photographic supply stores	5946	2,958	17,704	100	83	58
Gift, novelty, and souvenir shops	5947	34,402	179,249	97	81	54
Luggage and leather goods stores	5948	1,921	11,031	>94	83	64
Sewing, needlework, and piece goods stores	5949	7,497	58,579	98	77	30
Direct selling establishments	5963	13,207	119,526	82	44	24
Fuel dealers	598 [‡]	11,142	89,262	>93	68	40
Fuel oil dealers	5983	4,859	45,632	>88	55	29
Liquefied petroleum (bottled gas) dealers	5984	5,940	42,705	>99	82	50
Fuel dealers, NEC	5989	309	876	100	>79	>67
Retail stores, NEC	599 [‡]	90,164	421,359	98	78	57
Florists	5992	26,757	120,354	99	85	62
Tobacco stores and stands	5993	1,655	7,146	>95	81	63
News dealers and newsstands	5994	2,310	9,247	95	79	63
Optical goods stores	5995	14,318	73,120	99	76	57
Miscellaneous retail stores, NEC	5999	44,558	210,825	97	75	54

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division H, Finance, insurance, and real estate 60-67]:	[SIC					
Credit unions	606	15,142	151,685	86	47	27
Insurance agents, brokers, and service	641	123,998	661,685	83	59	43
Real estate operators and lessors	651	99,852	483,250	87	61	45
Title abstract offices	654	4,881	42,593	>86	>49	>27
Subdividers and developers	655 [†]	16,912	106,235	81	45	30
Cemetery subdividers and developers	6553	6,263	43,929	>86	>43	>25
Oil royalty traders	6792	698	2,436	100	>71	58
Investors, NEC	6799	4,975	23,261	82	57	42
Division I, Services [SIC 7011-89]:						
Rooming and boarding houses	702	1,627	8,192	>93	65	43
Camps and recreational vehicle parks	703 [†]	6,645	31,418	90	60	40
Sporting and recreational camps	7032	3,018	15,238	92	57	37
Recreational vehicle parks and campsites	7033	3,611	16,173	88	63	43
Laundry, cleaning, and garment services	721 [†]	56,536	433,926	83	51	31
Garment pressing and cleaners' agents	7212	3,159	12,159	>98	82	63
Coin-operated laundries and drycleaning	7215	12,906	47,458	97	85	69
Drycleaning plants, except rug cleaning	7216	22,024	165,823	97	67	37
Carpet and upholstery cleaning	7217	8,289	39,576	97	69	45
Laundry and garment services, NEC	7219	3,665	20,353	85	55	39
Photographic studios, portrait	722	12,436	74,990	80	63	37
Beauty shops	723	82,478	388,925	>99	86	56
Barber shops	724	4,629	14,237	>99	88	71

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division I, Services [SIC 7011-89] (Continued):						
Shoe repair shops and shoeshine parlors	725	2,438	6,109	>96	88	76
Funeral services and crematories	726	15,912	93,562	98	80	52
Miscellaneous personal services, NEC	7299	17,296	97,224	83	61	42
Outdoor advertising services	7312	1,251	12,589	91	42	22
Adjustment and collection services	7322	5,649	76,016	>78	>32	>15
Commercial photography	7335	3,964	16,321	>80	>52	>39
Commercial art and graphic design	7336	12,401	53,026	96	71	51
Secretarial and court reporting services	7338	7,349	32,968	92	61	43
Disinfecting and pest control services	7342	10,716	76,208	97	63	32
Miscellaneous equipment rental and leasing	735 [†]	25,138	215,956	86	54	33
Medical equipment rental	7352	3,292	33,313	>81	>44	>22
Heavy construction equipment rental	7353	3,661	37,253	88	48	22
Equipment rental and leasing, NEC	7359	17,564	143,828	86	57	37
Computer rental and leasing	7377	812	7,780	>85	>36	>19
Truck rental and leasing, no drivers	7513	4,577	37,421	89	56	34
Utility trailer rental	7519	479	1,989	100	>66	>46
Automobile parking	752	8,879	58,475	89	54	36
Automotive repair shops	753 [‡]	133,335	557,862	99	87	64
Tops and body repair and paint shops	7532	35,030	177,811	>98	82	53
Automotive exhaust system repair shops	7533	5,502	24,720	100	96	82
Tire retreading and repair shops	7534	1,913	14,050	92	60	34
Automotive glass replacement shops	7536	4,938	22,786	100	85	64
Automotive transmission repair shops	7537	6,391	25,578	>99	93	77

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division I, Services [SIC 7011-89] (Continued):						
General automotive repair shops	7538	68,419	249,981	99	89	70
Automotive repair shops, NEC	7539	9,931	41,687	99	88	69
Automotive services, except repair	754 [‡]	24,299	184,328	96	56	32
Carwashes	7542	12,197	106,719	95	40	23
Automotive services, except repair	7549	11,704	77,119	98	79	43
Radio and television repair shops	7622	5,611	28,384	94	64	45
Refrigeration and air-conditioning service and repair shops	7623	3,687	24,160	>80	>52	>29
Watch, clock, and jewelry repair	763	1,642	5,140	>95	85	72
Reupholstery and furniture repair	764	6,735	21,796	>97	87	69
Miscellaneous repair shops	769 [‡]	42,189	257,741	90	59	39
Welding repair	7692	5,714	25,305	>94	73	53
Armature rewinding shops	7694	2,332	25,021	>81	>41	>19
Repair shops and related services, NEC	7699	34,136	207,396	89	59	39
Motion picture distribution services	7829	188	1,099	100	>51	>40
Motion picture theaters, except drive-ins	7832	6,155	108,358	>96	>34	>8
Drive-in motion picture theaters	7833	435	3,195	>80	38	19
Video tape rental	784	21,562	144,644	98	69	42
Dance studios, schools, and halls	791	5,255	24,430	98	83	57
Bowling centers	793	5,855	92,962	>96	>31	>9
Physical fitness facilities	7991	9,813	154,692	>82	>23	>9
Public golf courses	7992	4,021	47,993	>89	>31	>13
Coin-operated amusement devices	7993	4,722	31,418	90	64	43

See footnotes at end of table.

(Continued)

TABLE 3 (Continued).**Number and percentage of employees in the 253 identified small business industries* who are in establishments with fewer than 100, 20, and 10 employees, by SIC in 1994**

Industry name	SIC	Number of establishments	Number of employees	% employees in workplaces with		
				< 100	< 20	< 10
Division I, Services [SIC 7011-89] (Continued):						
Offices and clinics of medical doctors	801	198,538	1,621,384	80	53	34
Offices and clinics of dentists	802	110,559	594,259	99	92	66
Offices and clinics of doctors of osteopathy	803	8,385	48,908	99	83	54
Offices of other health practitioners	804 [‡]	79,002	314,788	95	82	64
Offices and clinics of chiropractors	8041	28,768	89,121	>99	96	83
Offices and clinics of optometrists	8042	17,080	72,027	99	93	73
Offices and clinics of podiatrists	8043	7,981	26,805	100	97	83
Offices and clinics of health practitioners, NEC	8049	24,817	126,300	88	63	42
Dental laboratories	8072	7,417	39,309	96	67	47
Schools and educational services, NEC	829	14,927	119,070	84	47	27
Child day care services	835	51,191	526,000	95	54	22
Labor organizations	863	19,264	171,996	82	52	29
Religious organizations	866	146,527	1,265,938	82	47	30
Architectural services	8712	18,295	126,421	86	54	35
Surveying services	8713	8,870	49,752	>96	71	47
Public relations services	8743	5,404	30,305	84	53	34
Services, NEC	899	14,632	85,030	>82	>46	>29
All small business industries combined	—	3,849,586	30,835,590	—	—	—

Source: Bureau of the Census *County Business Patterns, 1994*.

*Small business industries are those with 80% or more of their workers in establishments employing fewer than 100 workers.

†(>)indicates that it was not possible to determine the exact percentages in all size categories, as employment information is routinely withheld from *CBP* data by the Bureau of the Census to assure confidentiality of operations for some establishments. It was still possible to calculate at least the minimum percentages of workers in the desired categories for every industry.

‡Indicates that the SIC category is followed by at least one additional subcategory.

§Not elsewhere classified.

least 81% of the employees in *Soil Preparation Services* (SIC 071) work in establishments with fewer than 100 employees, thereby satisfying the definition of a small business industry. But the exact number of employees in establishments with fewer than 100 employees is not provided.

Many of the industrial classifications that meet the definition of a small business industry are also characterized as having the majority of their employees in establishments with fewer than 20 employees. In more than half (157) of the 253 small business industries, 50% of the employees worked in establishments with fewer than 20 employees. The small business industries with the largest number of employees working in establishments with fewer than 20 employees include the following: offices of *Podiatrists* (SIC 8043) (97%), *Chiropractors* (SIC 8041) (96%), *Optometrists* (SIC 8042) (93%), *Dentists* (SIC 802) (92%), and automotive shops specializing in *Exhaust System Repair* (SIC 7533) (96%) and *Transmission Repair* (SIC 7537) (93%).

BLS Survey of Occupational Injuries and Illnesses (SOII)

The BLS conducts its annual SOII in private industry. Data from the most recent survey year (1995) were used for this investigation [BLS 1997c]. The survey sample includes 250,000 establishments and is designed to provide detailed industry information about nonfatal occupational injuries and illnesses. Data for coal, metal and nonmetal mining, and railroad transportation are provided by the Mine Safety and Health Administration (MSHA) and the Federal Railroad Administration, Department of Transportation. The survey excludes self-employed workers and workers on farms with fewer than 11 employees. The survey includes the following private industry divisions:

Agriculture, Forestry, and Fishing (SIC 01–09)
Oil and Gas Extraction (SIC 13)
Sulfur Mining (part of SIC 14)
Construction (SIC 15–17)
Manufacturing (SIC 20–39)
*Transportation, Communications, and
Public Utilities* (SIC 41–42 and 44–49)
Wholesale and Retail Trade (SIC 50–59)
Finance, Insurance, and Real Estate (SIC 60–67)
Services (SIC 70–87 and 89)

Estimated IRs of nonfatal occupational injuries and illnesses are based on logs kept by private industry employers in accordance with recordkeeping guidelines of the U.S. Department of Labor. The BLS survey data on nonfatal occupational injuries and illnesses are reported by industry as follows:

- Total number of cases

- Total number of cases involving lost workdays
- Injury IRs per 100 full-time employees
- Combined injury and illness IRs per 100 full-time employees

BLS reports IRs for illnesses per 10,000 employees. For this investigation, illness IRs are reported per 100 employees to maintain consistency.

The annual survey sample is selected to represent all private industries and all employment class sizes in these industries in the United States and its territories. The national sample is designed to provide data at the two-digit SIC level for agriculture, forestry, and fishing. Data are provided at the three-digit SIC level for oil and gas extraction; transportation, communications, and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. The survey provides data at the four-digit SIC level for manufacturing industries. Employers who are selected to participate in the survey are obligated to complete and return the Occupational Injuries and Illnesses Survey Form, as specified in 29 CFR 1904.21. If selected to participate in the survey, small employers (those with no more than 10 employees at a single business establishment) are also obligated to maintain a log of occupational injuries and illnesses for completing the survey form [29 CFR 1904.15].

BLS Census of Fatal Occupational Injuries (CFOI)

The BLS also conducts the CFOI annually [BLS 1997b]. A variety of data sources (including death certificates, workers' compensation reports, news media, and records of Federal, State, and local agencies) are used to compile a comprehensive, verifiable count of fatal work-related injuries in the United States. Data from the 1994 survey were used for this investigation, since fatality rates for each small business industry had to be calculated from (1) the number of fatalities identified through the survey [BLS 1997c] and (2) the population at risk within each small business industry identified from the *County Business Patterns 1994* [Bureau of the Census 1996]. For each of the small business industries by SIC, a fatality rate was calculated as follows:

$$\text{Fatality rate} = [(\text{number of fatal work injuries}/\text{number employed}) \times 100,000 \text{ employees}]$$

The number of fatal occupational injuries by SIC for salaried and wage-earning employees in private industry was derived from the 1994 CFOI [BLS1995]. The employment totals by SIC code were determined from the *County Business Patterns 1994* [Bureau of the Census 1996]. The BLS *Current Population Survey* [BLS 1996] and the BLS employment data from the SOII [BLS 1997c] were also considered. However, employment information was not consistently available for all small business industries by SIC from these sources.

The use of numerator data (i.e., number of fatalities by SIC for 1994) and denominator data (i.e., number of persons employed by SIC for 1994) allowed for the calculation of fatality rates by SIC for small business industries in 1994. A potentially major inconsistency between these two data sources (which could significantly affect the fatality rate calculations) involves the inclusion or exclusion of data on self-employed workers. Because the CFOI survey data include fatalities among self-employed workers and the *County Business Patterns* data exclude this group from employment totals, using the two without adjustment would introduce bias into the calculation of industry-specific IRs, resulting in artificially high rates [Biddle and Kisner 1998]. To adjust for this inconsistency, we excluded fatal injury cases involving self-employed workers reported in the CFOI data, thereby bringing the numerator data more closely in line with the denominator data. The fatality rates calculated by SIC reflect the IR for fatal injury cases among the salaried and wage-earning sectors of small business industries within private industry; therefore, these rates do not necessarily characterize the fatality experience for self-employed workers in the same small business industries. In this report, the numbers of fatalities for self-employed workers within each small business industry from the 1994 CFOI [BLS 1995] are presented separately. Still, with insufficient data on self-employed workers by industry, this segment of the U.S. workforce could potentially be the least understood with respect to employment totals and occupational hazards—and therefore the most difficult to address with appropriate hazard intervention and prevention strategies. The need to adjust for these missing data illustrates the importance of characterizing self-employment in future employment surveillance projects. For example, certain construction and transportation industries tend to have a high proportion of self-employed workers [Biddle and Kisner 1998]; and other industries in the service division may experience rapid growth in the number of self-employed workers with the increasing reliance on temporary services, independent consulting, and limited contract work.

Injury, Illness, and Fatality Statistics for All Small Business Industries

Table 4 lists by SIC the small business industries for which occupational injury, illness, or fatality data were available. The table presents data on the numbers and IRs for combined occupational injury and illness cases, lost workday cases, and occupational injury, illness, and fatality cases.

Information was available for 105 of the 253 small business industries identified at either the three- or four-digit SIC level (and 1 at the two-digit SIC level). Most of the small business industries lacking data are in the *Service* (SIC 70–89), *Wholesale Trade* (SIC 50–51), and *Retail Trade* (SIC 52–59) industry divisions, with 54, 36, and 30 small business industries lacking information, respectively. The reason for this lack of information is that the BLS survey is designed to generate industry estimates at the four-digit SIC level only for manufacturing industries, and at the three-digit SIC level for nonmanufacturing industries.

TABLE 4.

Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
All private industry	— [‡]	6,575,400	8.1	2,972,100	3.6	6,080,600	7.5	494,800	0.6	5,923	1,252	4.8
All small business industries	—	1,561,300	—	644,950	—	1,507,500	—	>55,850	—	1,924	356	—
Soil preparation services	071	—	—	—	—	—	—	—	—	5	—	115
Veterinary services	074	9,700	7.9	2,900	2.4	9,500	7.7	600	0.2	—	—	—
Animal services, except veterinary	075	3,400	8.6	1,400	3.6	3,300	8.3	100	0.3	—	—	—
Landscape and horticultural services	078	33,300	10.5	14,700	4.6	32,000	10.1	1,300	0.4	100	36	22
Uranium-radium-vanadium ores	1094	—	—	—	—	—	—	—	—	—	—	—
Natural gas liquids	132	—	—	—	—	—	—	—	—	—	—	—
Dimension stone	141	300	9.1	200	5.6	300	9.0	<50	0.1	—	—	—
Crushed and broken stone	142 [§]	3,600	5.8	2,100	3.4	3,600	5.7	<50	0.1	13	—	35
Crushed and broken limestone	1422	—	—	—	—	—	—	—	—	—	—	—
Crushed and broken granite	1423	—	—	—	—	—	—	—	—	—	—	—
Sand and gravel	144 [§]	1,700	4.9	1,000	3.1	1,600	4.8	100	0.1	8	—	28
Construction sand and gravel	1442	—	—	—	—	—	—	—	—	—	—	—
Industrial sand	1446	—	—	—	—	—	—	—	—	—	—	—
Nonmetallic mineral services, except fuels	148	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
General contractors and operative builders	15	104,700	9.8	47,100	4.4	102,700	9.6	2,000	0.2	191	30	14
Plumbing, heating, and air conditioning	171	86,000	12.9	36,100	5.4	84,900	12.7	1,100	0.2	71	14	8.8
Painting and paper hanging	172	11,200	7.3	6,100	4.0	11,000	7.2	200	0.1	40	9	19
Masonry, stonework, and plastering	174 [§]	37,300	10.8	19,100	5.5	36,900	10.7	400	0.1	53	11	11
Masonry, stone setting, and other stone work	1741	—	—	—	—	—	—	—	—	—	—	—
Terrazzo, tile, marble, and mosaic work	1743	—	—	—	—	—	—	—	—	—	—	—
Carpentry and floor work	175 [§]	20,100	10.8	10,200	5.4	19,600	10.5	500	0.3	31	11	8.7
Carpentry work	1751	—	—	—	—	—	—	—	—	—	—	—
Floor laying, and other work, NEC**	1752	—	—	—	—	—	—	—	—	—	—	—
Roofing, siding, and sheet metal work	176	25,600	14.8	13,400	7.8	25,200	14.6	400	0.2	89	12	36
Concrete work	177	21,800	10.6	10,400	5.0	21,100	10.2	700	0.4	34	4	16
Water well drilling	178	1,900	9.4	900	4.2	1,900	9.3	<50	0.1	8	4	21
Miscellaneous special trade contractors	179 [§]	45,700	9.6	21,400	4.5	44,800	9.4	900	0.2	182	24	33
Glass and glazing work	1793	—	—	—	—	—	—	—	—	—	—	—
Excavation work	1794	—	—	—	—	—	—	—	—	47	8	42
Wrecking and demolition work	1795	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	W*	IR†
Special trade contractors, NEC	1799	—	—	—	—	—	—	—	—	46	10	17
Prepared feeds, NEC	2048	4,400	10.0	2,000	4.6	4,200	9.6	200	0.4	—	—	—
Animal and marine fats and oils	2077	1,500	17.1	800	9.3	1,400	16.4	100	0.7	—	—	—
Manufactured ice	2097	—	—	—	—	—	—	—	—	—	—	—
Fur goods	237	—	—	—	—	—	—	—	—	—	—	—
Logging	241	7,700	10.5	4,900	6.7	7,300	10.0	400	0.5	130	39	108
Special products sawmills, NEC	2429	—	—	—	—	—	—	—	—	—	—	—
Wood containers	244 [§]	8,200	17.1	4,000	8.4	8,100	16.9	100	0.2	6	—	14
Nailed and lock corner wood boxes	2441	—	—	—	—	—	—	—	—	—	—	—
Wood pallets and skids	2448	6,200	16.7	3,000	8.2	6,100	16.5	100	0.2	—	—	—
Wood preserving	2491	1,500	12.6	600	5.6	1,400	12.1	100	0.1	—	—	—
Industrial gases	2813	600	2.4	300	1.0	500	2.1	100	0.3	—	—	—
Fertilizers, mixing only	2875	1,000	10.2	500	4.8	1,000	10.1	<50	0.1	—	—	—
Printing ink	2893	1,200	8.0	400	2.7	1,200	7.9	<50	0.1	—	—	—
Asphalt paving mixtures and blocks	2951	1,300	9.4	600	3.9	1,300	9.2	<50	0.2	—	—	—
Concrete, gypsum, and plaster products	327 [§]	26,600	12.5	12,800	6.0	25,700	12.0	900	0.5	24	—	14
Concrete block and brick	3271	2,200	11.8	1,100	5.9	2,100	11.6	100	0.2	—	—	—
Ready-mixed concrete	3273	12,200	11.7	6,000	5.7	12,100	11.5	100	0.2	—	—	—
Cut stone and stone products	328	1,200	9.6	500	3.8	1,100	8.7	900	0.9	6	—	50

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).
Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Industrial patterns	3543	—	—	—	—	—	—	—	—	—	—	—
Industrial and commercial machinery and equipment, NEC	3599	32,400	12.3	12,500	4.7	31,100	11.8	1,300	0.5	13	4	3.3
Marking devices	3953	500	6.2	300	3.3	500	5.7	<50	0.5	—	—	—
Taxicabs	412	1,700	6.1	1,000	3.5	1,700	6.1	<50	0.0	103	17	324
Bus charter service, except local	4142	—	—	—	—	—	—	—	—	—	—	—
Bus terminal and service facilities	417	—	—	—	—	—	—	—	—	—	—	—
Farm product warehousing and storage	4221	—	—	—	—	—	—	—	—	—	—	—
Trucking terminal facilities	423	600	14.9	300	8.8	600	14.7	<50	0.2	7	—	>159††
Ferries	4482	—	—	—	—	—	—	—	—	—	—	—
Marinas	4493	—	—	—	—	—	—	—	—	—	—	—
Pipelines, NEC	4619	—	—	—	—	—	—	—	—	—	—	—
Passenger transportation arrangement	472 [§]	1,700	0.9	700	0.4	1,500	0.8	200	0.1	13	4	4.3
Travel agencies	4724	—	—	—	—	—	—	—	—	—	—	—
Freight transportation arrangement	473	9,300	6.1	5,500	3.6	9,200	6.0	100	0.1	10	—	8.5
Irrigation systems	497	—	—	—	—	—	—	—	—	—	—	—
Motor vehicles, parts, and supplies	501 [§]	48,900	10.7	23,400	5.1	46,000	10.0	2,900	0.7	24	—	4.8
Motor vehicle supplies and new parts	5013	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Tires and tubes	5014	—	—	—	—	—	—	—	—	—	—	—
Motor vehicle parts, used	5015	—	—	—	—	—	—	—	—	—	—	—
Furniture and home furnishings	502 ^s	9,200	6.5	4,600	3.3	9,000	6.3	200	0.2	6	—	3.5
Furniture	5021	—	—	—	—	—	—	—	—	—	—	—
Home furnishings	5023	—	—	—	—	—	—	—	—	—	—	—
Lumber and construction materials	503 ^s	24,900	10.5	12,000	5.0	24,700	10.4	200	0.1	25	—	11
Lumber, plywood, millwork, and wood panels	5031	—	—	—	—	—	—	—	—	—	—	—
Brick, stone, and related construction materials	5032	—	—	—	—	—	—	—	—	—	—	—
Roofing, siding, and insulation materials	5033	—	—	—	—	—	—	—	—	—	—	—
Construction materials, NEC	5039	—	—	—	—	—	—	—	—	—	—	—
Commercial equipment, NEC	5046	—	—	—	—	—	—	—	—	—	—	—
Metals and minerals, except petroleum	505 ^s	18,300	12.5	8,500	5.8	18,000	12.3	300	0.2	8	—	5.5
Metals service centers and offices	5051	—	—	—	—	—	—	—	—	—	—	—
Coal and other minerals and ores	5052	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Electrical apparatus and equipment, wiring supplies, and construction materials	5063	—	—	—	—	—	—	—	—	—	—	—
Hardware, plumbing, and heating equipment	507 [§]	17,800	6.4	8,800	3.2	17,300	6.3	500	0.1	9	—	3.5
Plumbing and hydronic heating supplies	5074	—	—	—	—	—	—	—	—	—	—	—
Warm-air heating and air conditioning equipment and supplies	5075	—	—	—	—	—	—	—	—	—	—	—
Refrigeration equipment and supplies	5078	—	—	—	—	—	—	—	—	—	—	—
Machinery, equipment, and supplies	508 [§]	54,800	7.1	21,800	2.8	53,600	7.0	1,200	0.1	28	—	4.0
Farm and garden machinery and equipment	5083	—	—	—	—	—	—	—	—	—	—	—
Industrial machinery and equipment	5084	—	—	—	—	—	—	—	—	—	—	—
Industrial supplies	5085	—	—	—	—	—	—	—	—	—	—	—
Service establishment equipment and supplies	5087	—	—	—	—	—	—	—	—	—	—	—
Sporting and recreational goods and supplies	5091	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Scrap and waste materials	5093	—	—	—	—	—	—	—	—	—	—	—
Industrial and personal service paper	5113	—	—	—	—	—	—	—	—	—	—	—
Piece goods, notions, and other dry goods	5131	—	—	—	—	—	—	—	—	—	—	—
Fish and seafoods	5146	—	—	—	—	—	—	—	—	—	—	—
Farm-product raw materials	515 [§]	6,700	7.1	2,900	3.1	6,500	7.0	200	0.1	20	—	19
Grain and field beans	5153	—	—	—	—	—	—	—	—	—	—	—
Livestock	5154	—	—	—	—	—	—	—	—	—	—	—
Farm-product raw materials, NEC	5159	—	—	—	—	—	—	—	—	—	—	—
Chemicals and allied products	516 [§]	8,100	5.5	3,700	2.5	7,800	5.4	300	0.1	—	—	—
Plastic materials and basic forms and shapes	5162	—	—	—	—	—	—	—	—	—	—	—
Chemical and allied products, NEC	5169	—	—	—	—	—	—	—	—	—	—	—
Petroleum and petroleum products	517 [§]	9,300	6.1	4,000	2.6	8,900	5.8	400	0.3	14	—	8.6
Petroleum bulk stations and terminals	5171	—	—	—	—	—	—	—	—	—	—	—
Petroleum and petroleum products wholesalers, except bulk stations and terminals	5172	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Farm supplies	5191	—	—	—	—	—	—	—	—	—	—	—
Flowers, nursery stock, and florists' supplies	5193	—	—	—	—	—	—	—	—	—	—	—
Paints, varnishes, and supplies	5198	—	—	—	—	—	—	—	—	—	—	—
Nondurable goods, NEC	5199	—	—	—	—	—	—	—	—	—	—	—
Paint, glass, and wallpaper stores	523	3,600	6.2	1,600	2.6	3,600	6.2	<50	0.0	—	—	—
Hardware stores	525	7,100	5.2	2,800	2.1	6,900	5.1	200	0.1	4	—	2.9
Retail nurseries, lawn, and garden supply stores	526	5,000	6.7	2,200	3.0	4,700	6.5	300	0.2	—	—	—
Mobile home dealers	527	2,200	6.6	900	2.7	2,200	6.5	<50	0.1	—	—	—
Variety stores	533	9,000	8.9	4,400	4.4	8,900	8.8	100	0.1	—	—	—
Meat and fish (seafood) markets, including freezer provisioners	542	1,600	4.1	600	1.5	1,600	4.0	<50	0.1	—	—	—
Fruit and vegetable markets	543	1,200	5.7	600	2.8	1,200	5.6	<50	0.1	—	—	—
Candy, nut, and confectionery stores	544	900	4.7	600	2.8	900	4.6	<50	0.1	—	—	—
Dairy products stores	545	500	4.7	300	2.5	400	4.0	100	0.7	—	—	—
Miscellaneous food stores	549	1,800	3.6	800	1.6	1,800	3.5	<50	0.1	—	—	—
Motor vehicle dealers (used only)	552	1,700	2.3	700	1.0	1,700	2.3	<50	0.0	10	—	14

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Auto and home supply stores	553	33,300	9.2	14,300	4.0	32,800	9.1	500	0.1	16	—	5.4
Gasoline service stations	554	23,700	4.4	10,100	1.9	23,100	4.3	600	0.1	54	4	7.2
Boat dealers	555	1,800	5.9	700	2.4	1,800	5.9	<50	0.0	—	—	—
Recreational vehicle dealers	556	2,200	9.3	600	2.7	2,200	9.3	<50	0.0	—	—	—
Motorcycle dealers	557	700	2.5	300	1.0	700	2.3	<50	0.2	—	—	—
Automotive dealers, NEC	559	—	—	—	—	—	—	—	—	—	—	—
Mens' and boys' clothing and accessory stores	561	1,400	2.1	800	1.1	1,300	2.0	100	0.1	—	—	—
Women's clothing stores	562	6,900	3.3	2,700	1.3	6,700	3.2	200	0.1	—	—	—
Women's accessories and specialty stores	563	—	—	—	—	—	—	—	—	—	—	—
Children's and infants' wear stores	564	700	2.9	400	1.7	700	2.9	<50	0.0	—	—	—
Shoe stores	566	4,000	2.7	2,100	1.4	3,800	2.6	200	0.1	—	—	—
Miscellaneous apparel and accessory stores	569	1,800	2.9	700	1.1	1,700	2.8	100	0.1	—	—	—
Furniture and home furnishings stores	571 [§]	30,900	7.2	15,300	3.5	30,500	7.0	400	0.2	16	7	2.0
Furniture stores	5712	—	—	—	—	—	—	—	—	—	—	—
Floor covering stores	5713	—	—	—	—	—	—	—	—	—	—	—
Draperies, curtain, and upholstery stores	5714	—	—	—	—	—	—	—	—	—	—	—
Miscellaneous home furnishings stores	5719	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Household appliance stores	572	5,200	7.2	2,100	2.9	5,100	7.2	100	0.0	—	—	—
Radio, television, and computer stores	573 [§]	10,500	3.3	4,600	1.4	10,300	3.2	200	0.1	15	5	3.6
Radio, television, and consumer electronics stores	5731	—	—	—	—	—	—	—	—	—	—	—
Computer and computer software stores	5734	—	—	—	—	—	—	—	—	—	—	—
Record and prerecorded tape stores	5735	—	—	—	—	—	—	—	—	—	—	—
Musical instrument stores	5736	—	—	—	—	—	—	—	—	—	—	—
Eating and drinking places	581 [§]	379,200	7.6	121,700	2.4	365,600	7.4	13,600	0.2	181	33	2.1
Eating places	5812	—	—	—	—	—	—	—	—	119	21	1.5
Drinking places	5813	—	—	—	—	—	—	—	—	38	11	8.7
Drug stores and proprietary stores	591	13,300	3.2	5,300	1.3	12,800	3.0	500	0.2	—	7	1.2
Liquor stores	592	2,000	2.5	700	0.9	2,000	2.5	<50	0.0	22	12	7.8
Used merchandise stores	593	3,600	4.5	2,100	2.6	3,500	4.4	100	0.1	22	7	13
Miscellaneous shopping goods stores	594 [§]	26,200	3.8	10,500	1.5	25,400	3.7	800	0.1	19	11	1.0
Sporting goods stores and bicycle shops	5941	—	—	—	—	—	—	—	—	—	—	—
Book stores	5942	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Stationery stores	5943	—	—	—	—	—	—	—	—	—	—	—
Jewelry stores	5944	—	—	—	—	—	—	—	—	—	—	—
Hobby, toy, and game shops	5945	—	—	—	—	—	—	—	—	—	—	—
Camera and photographic supply stores	5946	—	—	—	—	—	—	—	—	—	—	—
Gift, novelty, and souvenir shops	5947	—	—	—	—	—	—	—	—	—	—	—
Luggage and leather goods stores	5948	—	—	—	—	—	—	—	—	—	—	—
Sewing, needlework, and piece goods stores	5949	—	—	—	—	—	—	—	—	—	—	—
Direct selling establishments	5963	—	—	—	—	—	—	—	—	—	—	—
Fuel dealers	598 [§]	7,400	8.0	3,600	3.9	7,200	7.8	200	0.2	10	—	11
Fuel oil dealers	5983	—	—	—	—	—	—	—	—	—	—	—
Liquefied petroleum (bottled gas) dealers	5984	—	—	—	—	—	—	—	—	—	—	—
Fuel dealers, NEC	5989	—	—	—	—	—	—	—	—	—	—	—
Retail stores, NEC	599 [§]	12,000	3.3	4,900	1.3	11,400	3.1	600	0.2	26	11	3.6
Florists	5992	—	—	—	—	—	—	—	—	—	—	—
Tobacco stores and stands	5993	—	—	—	—	—	—	—	—	—	—	—
News dealers and newsstands	5994	—	—	—	—	—	—	—	—	—	—	—
Optical goods stores	5995	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Miscellaneous retail stores, NEC	5999	—	—	—	—	—	—	—	—	—	—	—
Credit unions	606	3,000	2.2	1,000	0.7	2,700	1.9	300	0.3	—	—	—
Insurance agents, brokers, and service	641	7,600	1.2	2,700	0.4	6,400	1.0	1,200	0.2	11	—	1.7
Real estate operators and lessors	651	32,100	7.1	16,100	3.6	30,600	6.8	1,500	0.3	31	4	5.6
Title abstract offices	654	200	0.9	100	0.3	200	0.8	<50	0.1	—	—	—
Subdividers and developers	655 [§]	7,300	7.7	3,400	3.6	7,000	7.5	300	0.2	—	—	—
Cemetery subdividers and developers	6553	—	—	—	—	—	—	—	—	—	—	—
Oil royalty traders	6792	—	—	—	—	—	—	—	—	—	—	—
Investors, NEC	6799	—	—	—	—	—	—	—	—	—	—	—
Rooming and boarding houses	702	—	—	—	—	—	—	—	—	—	—	—
Camps and recreational vehicle parks	703 [§]	3,100	10.8	1,000	3.5	2,900	10.2	200	0.6	7	—	22
Sporting and recreational camps	7032	—	—	—	—	—	—	—	—	—	—	—
Recreational vehicle parks and campsites	7033	—	—	—	—	—	—	—	—	—	—	—
Laundry, cleaning, and garment services	721 [§]	26,400	7.2	13,000	3.5	25,300	6.9	1,100	0.3	13	—	3.0
Garment pressing and cleaners' agents	7212	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Coin-operated laundries and drycleaning	7215	—	—	—	—	—	—	—	—	—	—	—
Drycleaning plants, except rug cleaning	7216	—	—	—	—	—	—	—	—	—	—	—
Carpet and upholstery cleaning	7217	—	—	—	—	—	—	—	—	—	—	—
Laundry and garment services, NEC	7219	—	—	—	—	—	—	—	—	—	—	—
Photographic studios, portrait	722	1,600	2.9	800	1.4	1,500	2.7	100	0.2	—	—	—
Beauty shops	723	5,000	1.7	1,900	0.7	3,700	1.3	1,300	0.4	—	—	—
Barber shops	724	—	—	—	—	—	—	—	—	5	—	35
Shoe repair shops and shoeshine parlors	725	—	—	—	—	—	—	—	—	—	—	—
Funeral services and crematories	726	2,400	3.2	1,100	1.5	2,300	3.1	100	0.1	—	—	—
Miscellaneous personal services, NEC	7299	—	—	—	—	—	—	—	—	—	—	—
Outdoor advertising services	7312	—	—	—	—	—	—	—	—	—	—	—
Adjustment and collection services	7322	—	—	—	—	—	—	—	—	—	—	—
Commercial photography	7335	—	—	—	—	—	—	—	—	—	—	—
Commercial art and graphic design	7336	—	—	—	—	—	—	—	—	—	—	—
Secretarial and court reporting services	7338	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Disinfecting and pest control services	7342	—	—	—	—	—	—	—	—	—	—	—
Miscellaneous equipment rental and leasing	735 [§]	16,100	7.9	6,500	3.2	15,600	7.6	500	0.3	14	—	6.5
Medical equipment rental	7352	—	—	—	—	—	—	—	—	—	—	—
Heavy construction equipment rental	7353	—	—	—	—	—	—	—	—	—	—	—
Equipment rental and leasing, NEC	7359	—	—	—	—	—	—	—	—	—	—	—
Computer rental and leasing	7377	—	—	—	—	—	—	—	—	—	—	—
Truck rental and leasing, no drivers	7513	—	—	—	—	—	—	—	—	—	—	—
Utility trailer rental	7519	—	—	—	—	—	—	—	—	—	—	—
Automobile parking	752	2,900	5.7	1,200	2.4	2,800	5.6	100	0.1	—	—	—
Automotive repair shops	753 [§]	35,400	6.6	13,900	2.6	34,400	6.4	1,000	0.2	61	28	5.9
Top, body and upholstery repair shops, and paint shops	7532	—	—	—	—	—	—	—	—	—	—	—
Automotive exhaust system repair shops	7533	—	—	—	—	—	—	—	—	—	—	—
Tire retreading and repair shops	7534	—	—	—	—	—	—	—	—	—	—	—
Automotive glass replacement shops	7536	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Automotive transmission repair shops	7537	—	—	—	—	—	—	—	—	—	—	—
General automotive repair shops	7538	—	—	—	—	—	—	—	—	—	—	—
Automotive repair shops, NEC	7539	—	—	—	—	—	—	—	—	—	—	—
Automotive services, except repair	754 [§]	12,000	7.1	5,900	3.5	11,700	6.9	300	0.2	14	—	7.6
Carwashes	7542	—	—	—	—	—	—	—	—	—	—	—
Automotive services, except repair	7549	—	—	—	—	—	—	—	—	—	—	—
Radio and television repair shops	7622	—	—	—	—	—	—	—	—	—	—	—
Refrigeration and air conditioning service and repair shops	7623	—	—	—	—	—	—	—	—	—	—	—
Watch, clock, and jewelry repair	763	—	—	—	—	—	—	—	—	—	—	—
Reupholstery and furniture repair	764	1,000	5.3	600	3.0	1,000	5.2	<50	0.1	—	—	—
Miscellaneous repair shops	769 [§]	19,700	9.5	9,100	4.4	19,300	9.3	400	0.2	29	11	7.0
Welding repair	7692	—	—	—	—	—	—	—	—	—	—	—
Armature rewinding shops	7694	—	—	—	—	—	—	—	—	—	—	—
Repair shops and related services, NEC	7699	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).

Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Motion picture distribution services	7829	—	—	—	—	—	—	—	—	—	—	—
Motion picture theaters, except drive-ins	7832	—	—	—	—	—	—	—	—	—	—	—
Drive-in motion picture theaters	7833	—	—	—	—	—	—	—	—	—	—	—
Video tape rental	784	1,100	1.3	300	0.3	1,100	1.3	<50	0.0	7	—	4.8
Dance studios, schools, and halls	791	100	0.9	<50	0.5	100	0.9	<50	0.0	—	—	—
Bowling centers	793	2,000	3.8	600	1.2	1,900	3.7	100	0.2	—	—	—
Physical fitness facilities	7991	—	—	—	—	—	—	—	—	—	—	—
Public golf courses	7992	—	—	—	—	—	—	—	—	—	—	—
Coin-operated amusement devices	7993	—	—	—	—	—	—	—	—	—	—	—
Offices and clinics of medical doctors	801	37,900	2.8	9,800	0.7	32,700	2.4	5,200	0.4	11	—	0.7
Offices and clinics of dentists	802	10,100	2.4	700	0.2	9,000	2.1	1,100	0.3	6	4	0.3
Offices and clinics of doctors of osteopathy	803	—	—	—	—	—	—	—	—	—	—	—
Offices of other health practitioners	804 [§]	6,000	1.9	2,700	0.8	5,400	1.7	600	0.2	—	—	—
Offices and clinics of chiropractors	8041	—	—	—	—	—	—	—	—	—	—	—
Offices and clinics of optometrists	8042	—	—	—	—	—	—	—	—	—	—	—
Offices and clinics of podiatrists	8043	—	—	—	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 4 (Continued).**Injuries, illnesses, and lost workday cases (1995) and fatal occupational injuries (1994) in small business industries, by SIC**

Industry name	SIC	Illnesses and injuries combined		Lost workday cases		Injuries only		Illnesses only		Fatal occupational injuries		
		Number	IR	Number	IR	Number	IR	Number	IR	Total	SW*	IR†
Offices and clinics of health practitioners, NEC	8049	—	—	—	—	—	—	—	—	—	—	—
Dental laboratories	8072	—	—	—	—	—	—	—	—	—	—	—
Schools and educational services, NEC	829	2,800	3.1	1,000	1.1	2,600	2.9	200	0.2	10	—	8.4
Child day care services	835	14,800	3.8	6,700	1.7	13,800	3.5	1,000	0.3	5	—	0.2
Labor organizations	863	—	—	—	—	—	—	—	—	—	—	—
Religious organizations	866	2,000	2.6	900	1.2	1,900	2.5	100	0.1	27	—	2.1
Architectural services	8712	—	—	—	—	—	—	—	—	—	—	—
Surveying services	8713	—	—	—	—	—	—	—	—	—	—	—
Public relations services	8743	—	—	—	—	—	—	—	—	—	—	—
Services, NEC	899	900	2.4	500	1.2	800	2.1	100	0.3	7	—	8.2

*SW = the number of fatal occupational injuries associated with self-employed workers; this number is included in the total number of fatal occupational injuries, but it was not used in the calculation of the fatality rate.

†Fatal occupational injuries associated with self-employed workers are excluded from the calculations in this column. Denominator data were derived from employment totals by SIC in the Bureau of the Census *County Business Patterns 1994*.

‡— indicates that too few data were reported or available for the industry at this SIC level.

§Indicates that the SIC category listed is followed by at least one additional subcategory.

**Not elsewhere classified.

††A wide discrepancy exists between the BLS estimate and the Bureau of the Census data on the number of persons employed in Trucking terminal facilities [SIC 423]. The *SOII 1995* estimates employment for this industry to be 4,400, whereas data from the *CBP 1994* shows employment to be 553. The larger estimate was used as the denominator to calculate the fatality rate for this particular SIC category. The fatality rate for this category, though high compared with other SIC categories, is probably conservative.

4

Results

At least one-third of all occupational fatalities occurred in establishments with fewer than 20 employees, and at least half occurred in establishments with fewer than 100 employees.

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Results

Of the 253 SIC codes that met the definition of small business industry, 105 had available occupational injury, illness, and fatality data. These industries included 101 small business industries with available injury and illness data: 1 at the two-digit SIC level, 88 at the three-digit level, and 12 at the four-digit level. Of the 150 small business industries identified at the four-digit SIC level, 96 SIC codes were contained within a broader small business industry code at the three-digit level. Data indicated that there were 62 small business industries in which at least one fatal occupational injury had occurred. These included 58 small business industries with available injury and illness data and 4 without such data.

Nonfatal Occupational Injuries

The BLS defines occupational injury as a laceration, fracture, sprain, amputation, etc. that results from a work-related event or from a single instantaneous exposure in the work environment [BLS 1997c]. In all private industry, an estimated 6.1 million nonfatal occupational injury cases occurred in 1995. This number translates to an IR of 7.5 injuries per 100 full-time employees. Figures 1 through 6 identify the highest-risk small business industries (top 25%) for which data are available with regard to nonfatal occupational injuries, nonfatal occupational illnesses, and lost workday cases for injuries and illnesses [BLS 1997c]. Figure 1 lists the top quartile of small business industries according to the total number of cases of nonfatal occupational injuries. This ranking does not take into account differences in the number of employees associated with a particular SIC (as with the injury rates in Figure 2), but it is important for showing the number of employees affected. This ranking on the basis of total number of injury cases is also important for recognizing occupational populations to target with interventions that have a broader impact (i.e., those that affect a larger number of employees). Leading the list are two of the largest small business industries—*Eating and Drinking Places* (SIC 581) and *General Contractors and Operative Builders* (SIC 15)—with 365,600 cases and 102,700 cases, respectively.

In Figure 2, the top 25% of small business industries are listed by the IRs for nonfatal occupational injury cases. When considering the total number of employees for each SIC, *Eating and Drinking Places* drops out of the top 25% with an IR of 7.4, and *General Contractors and Operative Builders* drops to number 22 with an IR of 9.6. Topping the list are the manufacturing categories of *Wood Containers* (SIC 244), the subcategory *Wood Pallets and Skids* (SIC 2448), and *Animal and Marine Fats and Oils* (SIC 2077), with rates of 16.9, 16.5, and 16.4, respectively.

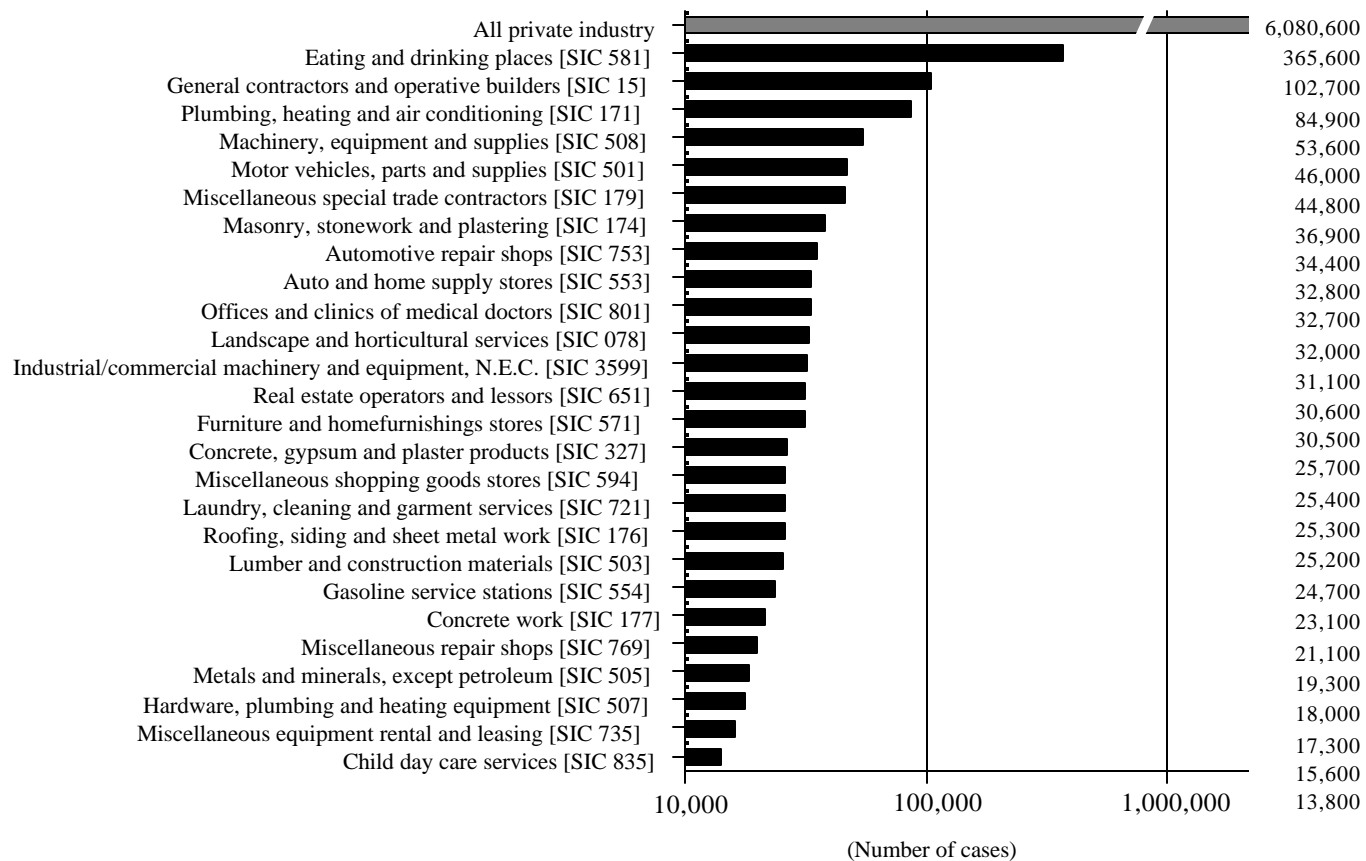


Figure 1. Small business industries with the highest numbers of nonfatal occupational injury cases (top 25%). (Source: BLS 1997c.)

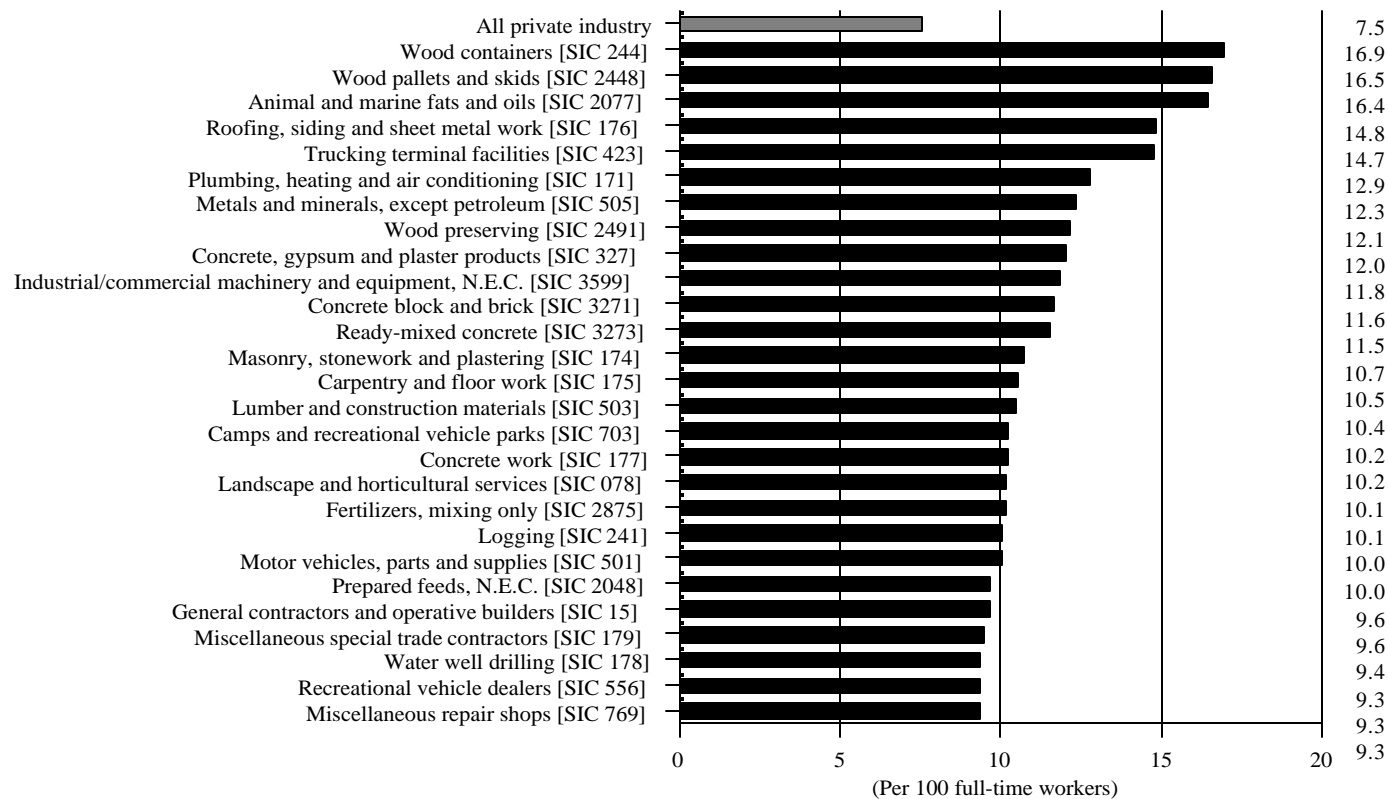


Figure 2. Small business industries with the highest nonfatal occupational injury IRs (top 25%). (Source: BLS 1997c.)

All small business industries in the top quartile in Figure 2 have IRs for nonfatal occupational injuries that exceed the average rate for all private industry (i.e., 7.5 cases per 100 full-time employees).

Nonfatal Occupational Illnesses

The BLS defines occupational illness as any abnormal condition or disorder (other than one resulting from an occupational injury) caused by exposure to factors associated with employment [BLS 1997c]. This BLS definition includes acute and chronic illness or disease that may be caused by inhalation, absorption, ingestion, or direct contact. Of the estimated 6.5 million cases of nonfatal occupational illness and injury in private industry reported by the BLS for 1995, roughly 495,000 (7.5%) were cases of occupational illness. Additional information about occupational illnesses at the two- and three-digit SIC level is available from the BLS, including data for the following illness categories:

- Skin diseases or disorders (e.g., contact dermatitis, eczema, oil acne, and chemical burns)
- Dust diseases of the lungs (e.g., silicosis, asbestosis, byssinosis, and siderosis)
- Respiratory conditions due to toxic agents (e.g., pneumonitis, farmer's lung, and acute congestion)
- Poisoning (e.g., by exposure to metals, organic solvents, carbon monoxide, and insecticide sprays)
- Disorders due to physical agents (e.g., heatstroke, heat exhaustion, frostbite, freezing, and ionizing and nonionizing radiation)
- Disorders associated with repeated trauma (e.g., musculoskeletal disorders, noise-induced hearing loss, Raynaud's phenomenon, synovitis, bursitis, and tenosynovitis)
- All other occupational illnesses (e.g., infectious hepatitis, food poisoning, and histoplasmosis)

Because most of the small business industries examined for this study were identified at the three- and four-digit SIC levels, no analysis was performed of occupational illnesses by the categories listed above for two- and three-digit SIC codes. Instead, SIC codes were identified with the greatest total cases and IRs for occupational injury and illness. Subsequent analyses can be performed to determine the nature of these illnesses, identify related hazards, and determine prevention strategies for priority industries.

The data on nonfatal occupational illnesses in Table 4 and in Figures 3 and 4 may be useful in targeting industries where the morbidity rate reflects illnesses that are

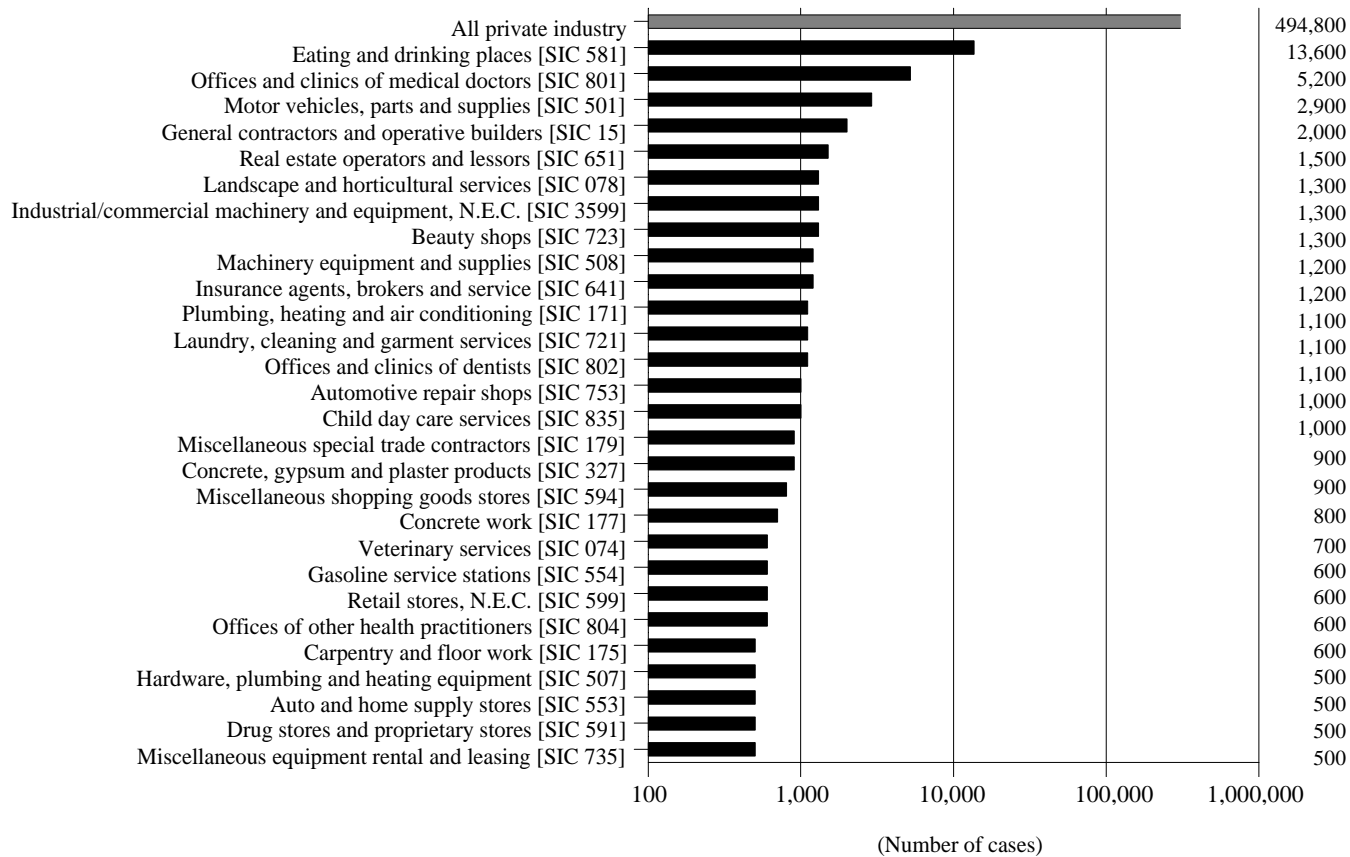


Figure 3. Small business industries with the highest numbers of nonfatal occupational illness cases (top 25%).
 (Source: BLS 1997c.)

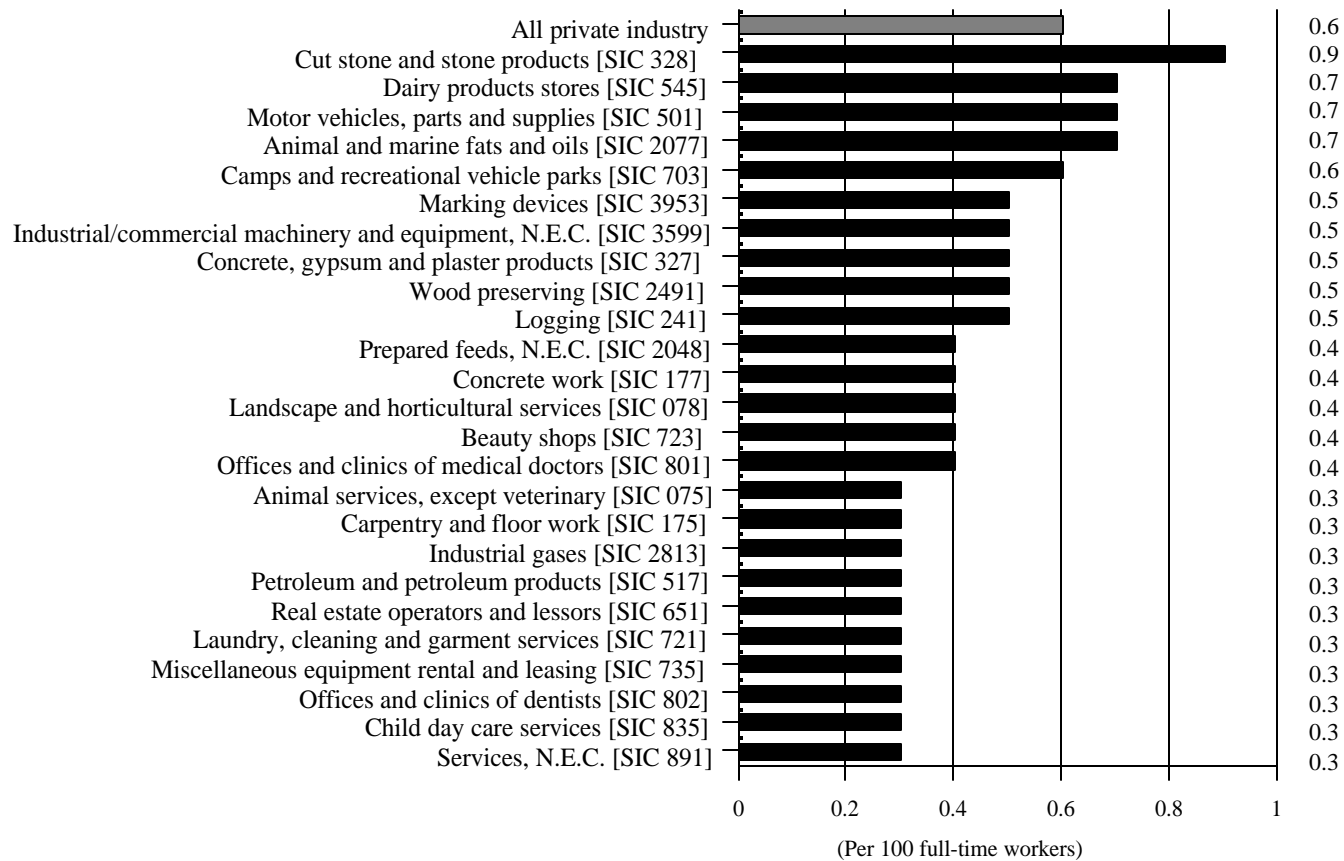


Figure 4. Small business industries with the highest nonfatal occupational illness IRs (top 25%). (Source: BLS 1997c.)

caused by exposure to known hazards. Table 4 lists data on the number of occupational illnesses and the corresponding rates for small business industries (when available). In Figure 3, the top 25% of small business industries are ranked by total cases of occupational illnesses. Leading this list is *Eating and Drinking Places* (SIC 581), with 13,600 cases of occupational illness. Next are *Offices and Clinics of Medical Doctors* (SIC 801), with 5,200 cases, and *Wholesale Trade of Motor Vehicles, Parts, and Supplies* (SIC 501), with 2,900 cases. In Figure 4, the top 25% of small business industries are ranked according to IRs for cases of occupational illness. This list is headed by *Cut Stone and Stone Products* (SIC 328), with an IR of 0.9 cases per 100 full-time employees. Next are *Dairy Products Stores* (SIC 545), *Motor Vehicles, Parts, and Supplies* (SIC 501), and *Animal and Marine Fats and Oils* (SIC 2077), each with an IR of 0.7. Only the top four small business industries in Figure 4 have occupational illness IRs that exceed the average rate for all private industry (i.e., 0.6 cases per 100 full-time employees).

Cases of occupational injury and illness (especially the latter) are likely to be underreported [Leigh et al. 1997]. The data from the annual SOII [BLS 1997c] are collected from private firms that (as some have argued) face an economic incentive to underreport [Ruser and Smith 1991; Leigh et al. 1997]. One study of work-related cumulative trauma disorders (which are considered an occupational illness) indicates a 60% undercount based on illness reporting by private industry [Nelson et al. 1992].

Cases Involving Lost Workdays Due to Nonfatal Occupational Injury and Illness

Figures 5 and 6 present lost workday cases and IRs as measures of more severe occupational illnesses and injuries combined (i.e., cases requiring days away from work, days of restricted work activity, or both) [BLS 1997c]. Figure 5 lists the top 25% of small business industries ranked by total number of lost workday cases due to occupational injury and illness. The ranking in Figure 5 for cases involving lost work time is very similar to that in Figure 1, which shows all cases of nonfatal occupational injuries (with or without lost work time). This similarity is due to the high percentage of occupational injuries (92.5%) in the combined category. Again, with no consideration of the number of employees in a given SIC, *Eating and Drinking Places* (SIC 581) tops the list with 121,700 cases. *General Contractors and Operative Builders* (SIC 15) follows with 47,100 cases. The comparison of the ranking based on IRs for lost work time injuries and illnesses (Figure 6) with the ranking involving IRs for all nonfatal injuries (Figure 2) again indicates remarkable similarity. In Figure 6, rankings by IRs for lost workday cases due to occupational injuries and illnesses show that the manufacturing category of *Animal and Marine Fats* (SIC 2077) leads the list with a rate of 9.3 cases per 100 full-time employees. Next are *Trucking Terminal Facilities* (SIC 423), with an IR of 8.8; *Wood Containers* (SIC 244), with an IR of 8.4; and *Wood Pallets and Skids* (SIC 2448), with an IR of 8.2. All small business industries within the top quartile shown in Figure 6 have lost

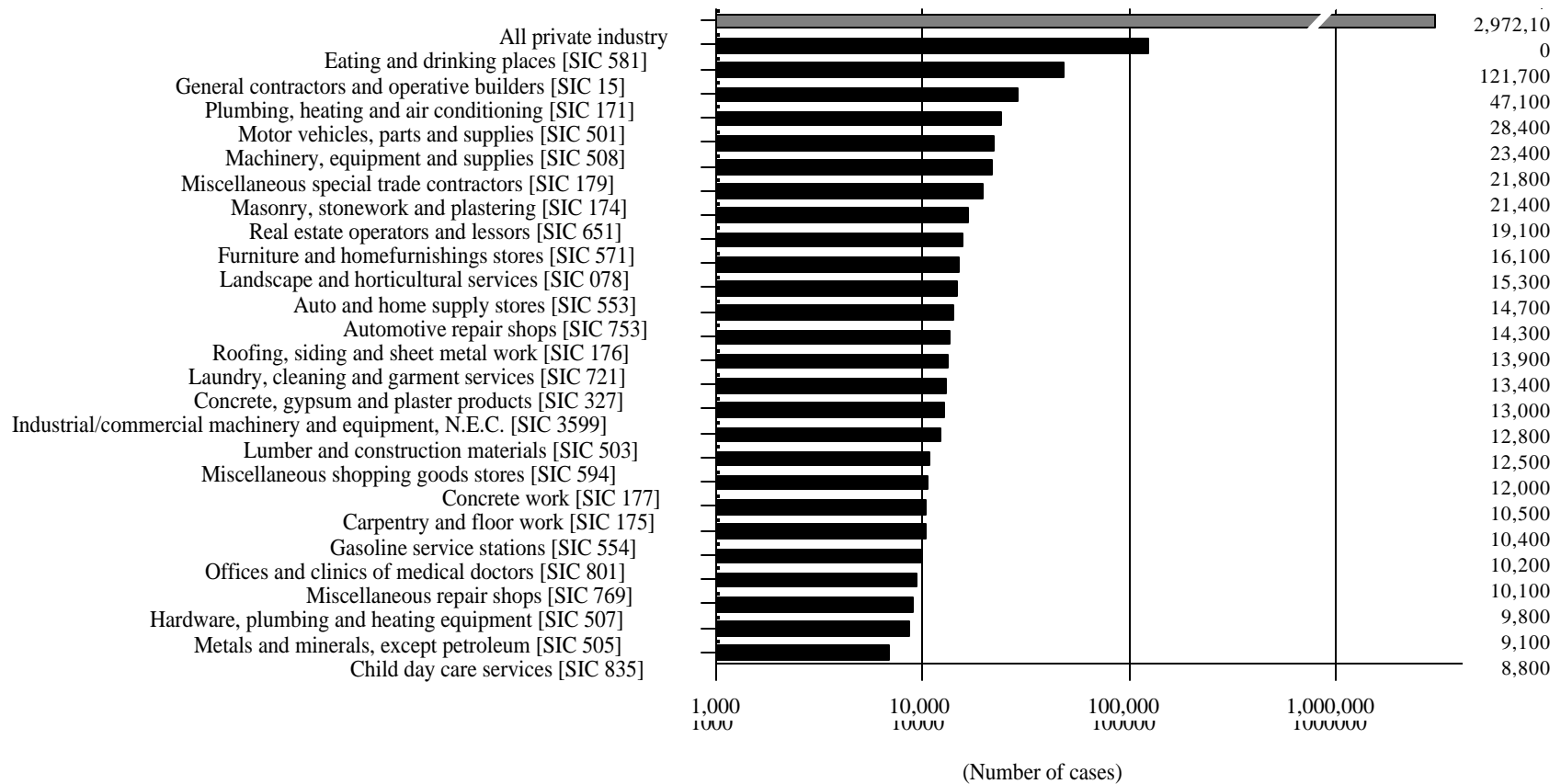


Figure 5. Small business industries with the highest numbers of lost workday cases (top 25%). (Source: BLS 1997c.)

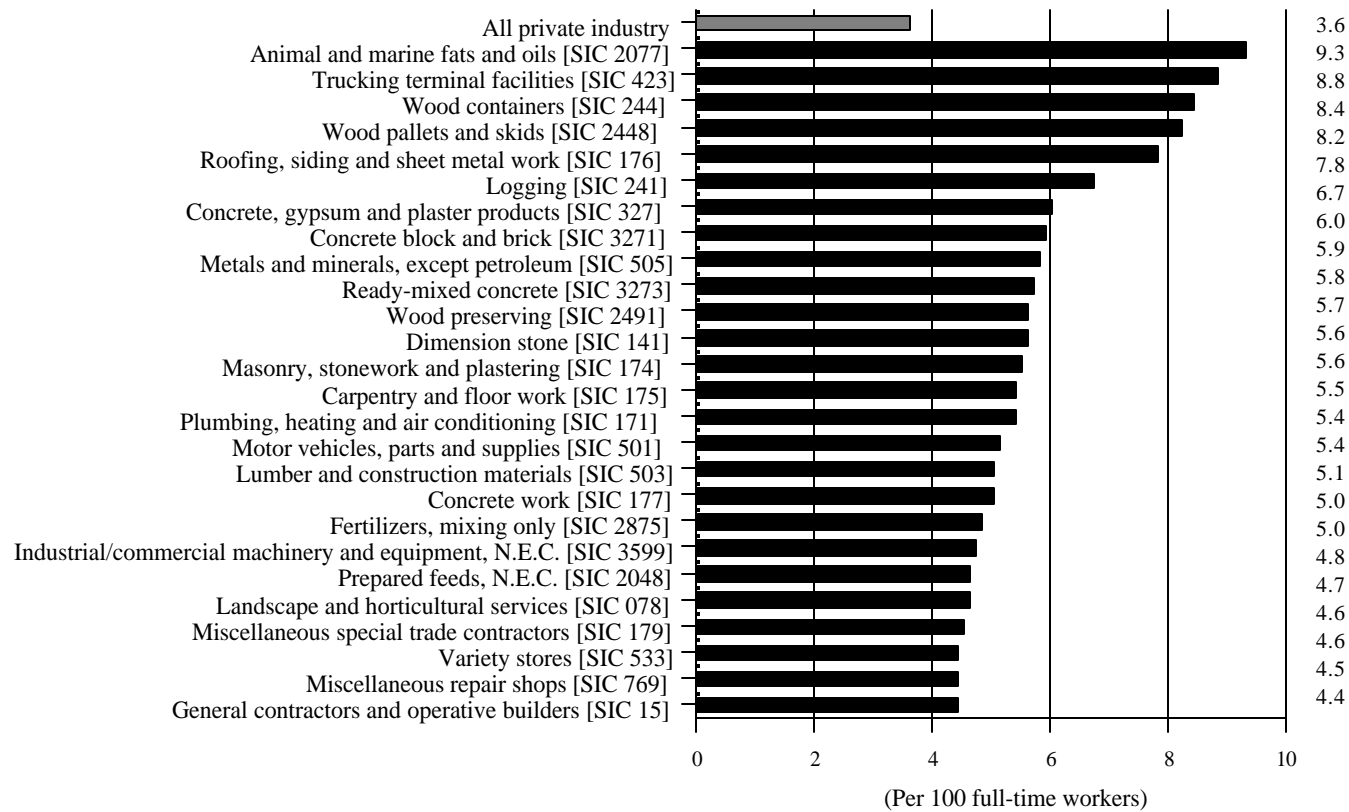


Figure 6. Small business industries with the highest lost workday IRs (top 25%). (Source: BLS 1997c.)

workday IRs that exceed the average rate for all private industry—3.6 lost workday cases per 100 full-time employees.

Fatal Occupational Injuries

In 1994, the BLS [1995] reported 6,588 fatal occupational injuries for the entire U.S. workforce, including 665 fatalities among government employees and 1,252 deaths involving self-employed workers. Excluding these two latter groups, the number of fatalities among salaried/wage-earning employees in private industry totaled 4,671 [BLS 1995]. For this investigation, we examined the 1994 CFOI data [BLS 1995] to determine which of the small business industries identified for this study had experienced fatal occupational injuries. Although fatality data for more recent years (1995 and 1996) were available, 1994 CFOI data were used to permit calculation of fatality rates by SIC using the employment data from the *County Business Patterns 1994* [Bureau of the Census 1996] as a denominator. Of the 253 industries identified in Tables 3 and 4 as small business industries, 62 were listed in the 1994 CFOI with associated fatal injuries. In Table 5, the small business industries are listed by number of fatal occupational injuries in 1994 associated with each SIC for both salaried/wage-earning employees and self-employed workers. Table 5 also includes a breakdown of the percentage of fatal occupational injuries attributed to a major event or exposure (i.e., transportation incidents, assaults and violent acts, contact with objects and equipment, falls, exposure to harmful substances or environments, and fires and explosions). The total number of reported fatal occupational injuries associated with the small business industries identified in this investigation was 1,924—or 32% of all fatal occupational injuries in private industry. Among small business industries, 356 of the fatal occupational injury cases involved self-employed workers. Fatal occupational injuries for all private industry totaled 5,923, with 1,252 fatal injuries occurring among self-employed workers.

Fatal occupational injuries in the salaried/wage-earning sector of private industry among small business industries (excluding self-employed workers) totaled 1,568—or 34% of the fatal occupational injuries in this sector of private industry in 1994. On the basis of CFOI data for all industries in 1994, the BLS noted that at least one-third of all work-related fatal occupational injuries occurred in establishments with fewer than 20 employees, and at least half occurred in establishments with fewer than 100 employees. The size of the establishment was unknown for 38% of fatal occupational injuries [BLS 1995].

As shown in Table 5, the greatest numbers of fatal occupational injuries among salaried/wage-earning employees occurred with *General Contractors and Operative Builders* (SIC 15) (n=161), *Miscellaneous Special Trade Contractors* (SIC 179) (n=158), *Eating Places* (SIC 5812) (n=98), *Logging* (SIC 241) (n=91), *Taxicabs* (SIC 412) (n=86), *Roofing, Siding, and Sheet Metal Work* (SIC 176) (n=77), and *Landscape and Horticultural Services* (SIC 078) (n=64). Figure 7 ranks the top 25% of small business industries with recorded fatal occupational injuries by IRs for fatal occupational injury. For these injuries, the highest IRs (per 100,000

TABLE 5.

Number and type of fatal occupational injuries in small business industries, ranked by number of fatal occupational injuries for 1994

Industry name	SIC	Rank [†]	Number of fatal occupational injuries		Type of event or exposure as % of total fatal occupational injuries*									
			Total, excluding self-employed	In self-employed workers	Transportation incidents			Assaults/violent acts			Contact with objects and equipment	Falls	Exposure to harmful substances/environments	Fires and explosions
					Total	HW [‡]	WS	Total	AH	HS				
Private industry	—	— [§]	4,671	1,252	41	20	5	20	16	14	16	10	10	3
General contractors and operative builders	15	1	161	30	22	14	4	5	4	4	16	42	12	3
Miscellaneous special trade contractors	179	2	158	24	20	8	5	—	—	—	31	32	9	6
Eating places	5812	3	98	21	12	10	2	77	74	61	—	4	3	—
Logging	241	4	91	39	19	6	5	—	—	—	79	—	—	—
Taxicabs	412	5	86	17	12	10	—	86	85	82	—	—	—	—
Roofing, siding, and sheet metal work	176	6	77	12	9	7	—	—	—	—	6	67	15	—
Landscape and horticultural services	078	7	64	36	33	17	7	7	—	—	23	24	17	—
Plumbing, heating, and air conditioning	171	8	57	14	30	21	—	6	—	—	23	24	14	—
Gasoline service stations	554	9	50	4	15	11	—	82	76	65	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 5 (Continued).

Number and type of fatal occupational injuries in small business industries, ranked by number of fatal occupational injuries for 1994

Industry name	SIC	Rank [†]	Number of fatal occupational injuries		Type of event or exposure as % of total fatalities*									
			Total, excluding self-employed	In self-employed workers	Transportation incidents			Assaults/violent acts			Contact with objects and equipment	Falls	Exposure to harmful substances/environments	Fires and explosions
					Total	HW [‡]	WS	Total	AH	HS				
Masonry, stonework, and plastering	174	10	42	11	34	25	—	—	—	—	—	53	8	—
Excavation work	1794	11	39	8	36	13	11	—	—	—	53	—	—	—
Special trade contractors, NEC	1799	12	36	10	20	13	—	—	—	—	24	15	24	13
Automotive repair shops	753	13	33	28	10	5	—	34	21	18	28	—	10	13
Painting and paper hanging	172	14	31	9	13	—	—	—	—	—	—	63	15	—
Concrete work	177	15	30	4	27	15	—	—	—	—	35	12	15	—
Machinery, equipment, and supplies	508	16	28	—	57	39	—	—	—	—	25	—	—	—
Drinking places	5813	17	27	11	—	—	—	92	92	76	—	—	—	—
Real estate operators and lessors	651	17**	27	4	—	—	—	45	39	32	16	13	16	—
Religious organizations	866	17	27	—	56	26	—	19	19	—	—	—	—	—
Lumber and construction materials	503	20	25	—	48	36	—	—	—	—	20	—	20	—

See footnotes at end of table.

(Continued)

TABLE 5 (Continued).

Number and type of fatal occupational injuries in small business industries, ranked by number of fatal occupational injuries for 1994

Industry name	SIC	Rank [†]	Number of fatal occupational injuries		Type of event or exposure as % of total fatalities*									
			Total, excluding self-employed	In self-employed workers	Transportation incidents			Assaults/violent acts			Contact with objects and equipment	Falls	Exposure to harmful substances/environments	Fires and explosions
					Total	HW [†]	WS	Total	AH	HS				
Concrete, gypsum, and plaster products	327	21	24	—	50	33	13	—	—	—	33	—	—	—
Motor vehicles, parts, and supplies	501	21	24	—	58	38	—	—	13	—	17	—	—	—
Carpentry and floor work	175	23	20	11	23	16	—	—	—	—	—	55	16	—
Farm-product raw materials	515	23	20	—	35	20	—	—	—	—	25	—	—	—
Miscellaneous repair shops	769	25	18	11	21	21	—	21	14	10	24	—	—	21
Auto and home supply stores	553	26	16	—	50	31	—	38	25	25	—	—	—	—
Used merchandise stores	593	27	15	7	—	—	—	77	73	55	—	—	—	—
Retail stores, NEC	599	27	15	11	31	23	—	58	54	35	—	—	—	—
Petroleum and petroleum products	517	29	14	—	69	62	—	—	—	—	—	—	—	—
Miscellaneous equipment rental and leasing	735	29	14	—	57	36	—	—	—	—	—	—	—	—

See footnote at end of table.

(Continued)

TABLE 5 (Continued).

Number and type of fatal occupational injuries in small business industries, ranked by number of fatal occupational injuries for 1994

Industry name	SIC	Rank [†]	Number of fatal occupational injuries		Type of event or exposure as % of total fatalities*									
			Total, excluding self-employed	In self-employed workers	Transportation incidents			Assaults/violent acts			Contact with objects and equipment	Falls	Exposure to harmful substances/environments	Fires and explosions
					Total	HW [‡]	WS	Total	AH	HS				
Automobile services, except repair	754	29	14	—	64	21	43	—	—	—	—	—	—	—
Crushed and broken stone	142	32	13	—	39	—	—	—	—	—	39	—	—	—
Laundry, cleaning, and garment services	721	32	13	—	23	23	—	39	39	39	—	—	—	—
Insurance agents, brokers, and service	641	34	11	—	55	46	—	—	—	—	—	—	—	—
Offices and clinics of medical doctors	801	34	11	—	36	—	—	55	27	—	—	—	—	—
Freight transportation arrangement	473	36	10	—	80	30	30	—	—	—	—	—	—	—
Motor vehicle dealers (used only)	552	36	10	—	60	—	—	—	—	—	—	—	—	—
Radio, television, and computer stores	573	36	10	5	40	—	—	60	60	60	—	—	—	—
Liquor stores	592	36	10	12	—	—	—	100	100	86	—	—	—	—
Fuel dealers	598	36	10	—	40	30	—	—	—	—	—	—	—	—

See footnotes at end of table.

(Continued)

TABLE 5 (Continued).

Number and type of fatal occupational injuries in small business industries, ranked by number of fatal occupational injuries for 1994

Industry name	SIC	Rank [†]	Number of fatal occupational injuries		Type of event or exposure as % of total fatalities*									
			Total, excluding self-employed	In self-employed workers	Transportation incidents			Assaults/violent acts			Contact with objects and equipment	Falls	Exposure to harmful substances/environments	Fires and explosions
					Total	HW [‡]	WS	Total	AH	HS				
Schools and educational services, NEC	829	36	10	—	80	—	—	—	—	—	—	—	—	—
Industrial and commercial machinery and equipment, NEC	3599	42	9	4	—	—	—	—	—	—	31	31	—	—
Passenger transportation arrangement	472	42	9	4	39	23	—	39	31	31	—	—	—	—
Hardware, plumbing, and heating equipment	507	42	9	—	67	33	—	—	—	—	—	—	—	—
Furniture and home furnishings stores	571	42	9	7	25	—	—	69	50	38	—	—	—	—
Sand and gravel	144	46	8	—	38	—	—	—	—	—	—	—	—	—
Metals and minerals, except petroleum	505	46	8	—	—	—	—	—	—	—	50	—	—	—
Miscellaneous shopping goods stores	594	46	8	11	—	—	—	90	79	63	—	—	—	—

TABLE 5 (Continued).

Number and type of fatal occupational injuries in small business industries, ranked by number of fatal occupational injuries for 1994

Industry name	SIC	Rank [†]	Number of fatal occupational injuries		Type of event or exposure as % of total fatalities*									
			Total, excluding self-employed	In self-employed workers	Transportation incidents			Assaults/violent acts			Contact with objects and equipment	Falls	Exposure to harmful substances/environments	Fires and explosions
					Total	HW [‡]	WS	Total	AH	HS				
Water well drilling	178	60	4	4	38	—	—	—	—	—	35	12	15	—
Hardware stores	525	60	4	—	—	—	—	—	—	—	—	—	—	—
Offices and clinics of dentists	802	62	2	4	—	—	—	83	—	—	—	—	—	—

Source: Bureau of Labor Statistics *Census of Fatal Occupational Injuries, 1994*.

*Numbers within the event or exposure columns represent the percentage of fatalities within the SIC associated with that event or exposure.

[†]NOTE: Totals for industries at the three-digit SIC-level may include subcategories.

[‡]Abbreviations: HW=highway accidents; WS=workers struck by vehicle; AH=all homicides; HS=homicides by shooting; NEC=not elsewhere classified.

[§]Dash indicates that no data were reported or that data do not meet publication criteria.

**Identical numbers indicate a tie in the ranking.

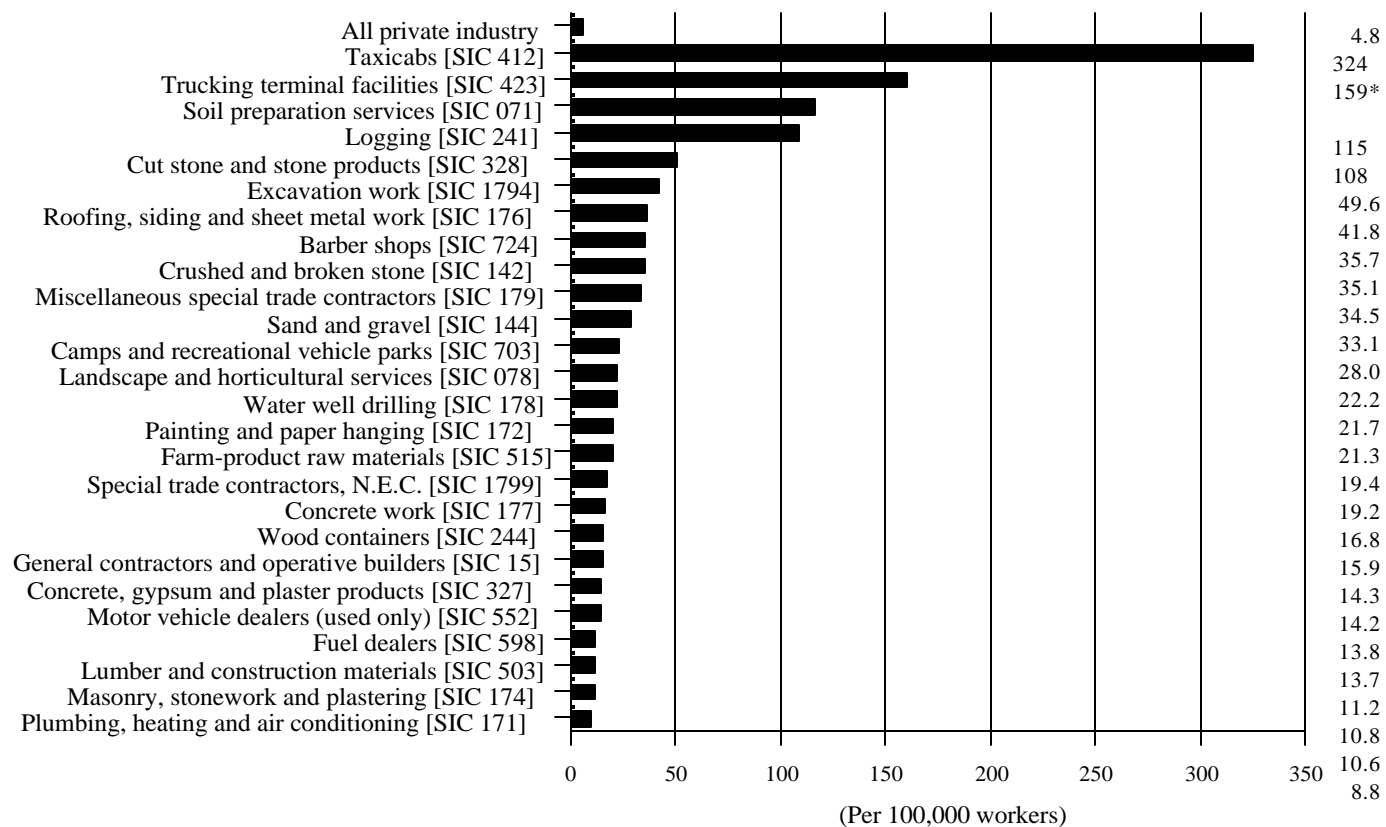


Figure 7. Small business industries with the highest fatal occupational injury IRs (top 25%). (Source: BLS 1997b.)

*Based on employment estimates from the 1995 SOII [BLS 1997c] rather than data from the *County Business Patterns 1994* [Bureau of the Census 1996] (which shows employment at only 553 for this SIC code).

full-time employees) occurred among employees involved with *Taxicabs* (SIC 412) (IR=324), *Trucking Terminal Facilities* (SIC 423) (IR=>159), *Soil Preparation Services* (SIC 071) (IR=115), *Logging* (SIC 241) (IR=108), and *Cut Stone and Stone Products* (SIC 328) (IR=49.6). These rates were significantly higher than the average fatal injury rate for all private industry (4.8 per 100,000 employees), and all small business industries in the top quartile exceeded this rate. The leading causes of fatal occupational injuries among small business industries were also reviewed. Transportation incidents (reported as percentage of all fatal occupational injuries by SIC, percentage associated with highway incidents, and percentage associated with worker struck by vehicle) were the leading cause of fatal occupational injury in 26 of the 62 small business industries reporting at least 1 fatal occupational injury. Transportation incidents were the leading cause of fatal occupational injury for all private industry as well. Assaults and violent acts (reported as percentage of all fatal occupational injuries by SIC, percentage associated with all homicides, and percentage associated with homicides by shooting) were the leading cause of fatal occupational injuries in 17 of the 62 small business industries, predominantly in the *Retail and Service* divisions. Assaults and violent acts include violence by persons, self-inflicted injury (suicide), and assaults by animals. The vast majority of all fatalities from assaults or violent acts were due to homicides; homicides by shooting were the leading cause. Contact with objects and equipment was the leading cause of fatal occupational injuries in 6 small business industries. Fatal falls were the leading cause in 6 other small business industries, primarily *Construction Industries*. Exposure to harmful substances and environments was a leading cause in 1 industry (*Manufacture of Wood Containers* [SIC 244]); this cause was also associated with deaths in 15 other small business industries. Fires and explosions were cited for causing deaths in 7 small business industries.

High-Risk Small Business Industries: A Combined Risk Index

The small business industry rankings by injury or illness measures in the previous sections are useful for devising and delivering various prevention campaigns. However, ranking these industries by combining data on occupational injury, illness, and fatality is also informative. To determine an overall ranking of the highest-risk small business industries, a combined risk index was calculated. The combined risk index uses the rankings of small business industries according to

- IRs for cases of nonfatal occupational injury per 100 full-time employees (Figure 2),
- IRs for cases of nonfatal occupational illness per 100 full-time employees (Figure 4), and
- IRs for cases of fatal occupational injury per 100,000 full-time employees (Figure 7).

For every small business industry listed in each of the three figures above, a score was assigned from 0 to 5 based on the individual ranking of the industry in the figure. Scores were assigned to rankings as follows:

- A ranking of 1 to 5 was assigned a score of 5.
- A ranking of 6 to 10 was assigned a score of 4.
- A ranking of 11 to 15 was assigned a score of 3.
- A ranking of 16 to 20 was assigned a score of 2.
- A ranking of 21 to the last ranking was assigned a score of 1.
- A score of 0 was assigned if a specific small business industry was not in the top 25% and therefore did not appear in the rankings.

To calculate the combined risk index, rankings based on IRs for nonfatal occupational injuries (Figure 2) and illnesses (Figure 4) were chosen rather than the rankings for total number of cases. Because the IR is derived from the number of cases by SIC divided by the number employed by SIC and is standardized per 100 full-time employees, it may be compared among different small business industries, which may not (and need not) be similar in size.

Rankings based on fatality IRs were also included in the calculation of the combined risk index. Because these cases involve the most extreme consequences of a work-related injury (i.e., death), it was determined that a fatality measure might deserve more weight in identifying hazardous industries. Therefore, a weighting factor was used to increase the relative value placed on fatal injuries in the calculation of the combined risk index. Such an approach was used previously in calculating an “index of harm” for comparing occupational risk of radiation exposures across industries [Solomon and Abraham 1980]. The score assigned to each SIC for fatal occupational injury IR was multiplied by 2 when calculating the combined risk index, thus giving the ranking based on fatality IRs a weighting equal to the rankings for nonfatal injuries and illnesses combined.

For each small business industry SIC, the three scores were totaled to achieve the combined risk index. The highest possible score was 20 (i.e., 4×5). Each small business industry SIC was viewed as independent of the others in the rankings and in the calculation of the combined risk index. No adjustment was made for subcategories contained within larger small business industries (e.g., *Wood Pallets and Skids* [SIC 2448] within *Wood Containers* [SIC 244]). All small business industries that achieved a combined risk index greater than or equal to 1 are presented by rank in Table 6.

Among the highest-ranking small business industries using the combined risk index was *Logging* (SIC 241), with a combined risk index of 16, followed by *Cut*

TABLE 6.**Small business industries ranked according to combined risk index**

Industry name	SIC	Rank by combined risk index	Combined risk index [†]	Risk scores assigned to the rankings of small business industries by injury, illness, and fatality IRs in Figures 2, 4, and 7*		
				Nonfatal occupational injury IR	Occupational illness IR	Fatal occupational injury IR × 2 [‡]
Logging	241	1	16	2	4	10
Cut stone and stone products	328	2	15	0	5	10
Trucking terminal facilities	423	2 [§]	15	5	0	10
Roofing, siding, and sheet metal work	176	4	13	5	0	8
Camps and recreational vehicle parks	703	4	13	2	5	6
Landscape and horticultural services	78	6	11	2	3	6
Animal and marine fats and oils	2077	7	10	5	5	0
Concrete, gypsum, and plaster products	327	7	10	4	4	2
Taxicabs	412	7	10	0	0	10
Concrete work	177	10	9	2	3	4
Miscellaneous special trade contractors	179	10	9	1	0	8
Wood containers	244	10	9	5	0	4
Crushed and broken stone	142	13	8	0	0	8
Excavation work	1794	13	8	0	0	8
Wood preserving	2491	13	8	4	4	0
Industrial and commercial machinery and equipment, NEC	3599	13	8	4	4	0
Barber shops	724	13	8	0	0	8
Water well drilling	178	18	7	1	0	6
Motor vehicles, parts, and supplies	501	18	7	2	5	0
Plumbing, heating, and air conditioning	171	20	6	4	0	2

See footnotes at end of table.

(Continued)

TABLE 6 (Continued).**Small business industries ranked according to combined risk index**

Industry name	SIC	Rank by combined risk index	Combined risk index [†]	Risk scores assigned to the rankings of small business industries by injury, illness, and fatality IRs in Figures 2, 4, and 7*		
				Nonfatal occupational injury IR	Occupational illness IR	Fatal occupational injury IR × 2 [‡]
Painting and paper hanging	172	20	6	0	0	6
Masonry, stonework, and plastering	174	22	5	3	0	2
Carpentry and floor work	175	22	5	3	2	0
Wood pallets and skids	2448	22	5	5	0	0
Lumber and construction materials	503	22	5	3	0	2
Dairy products stores	545	22	5	0	5	0
Special trade contractors, NEC	1799	27	4	0	0	4
Prepared feeds and feed ingredients for animals and fowls, except dogs and cats	2048	27	4	1	3	0
Marking devices	3953	27	4	0	4	0
Metals and minerals, except petroleum	505	27	4	4	0	0
General contractors and operative builders	15	31	3	1	0	2
Concrete block and brick	3271	31	3	3	0	0
Ready-mixed concrete	3273	31	3	3	0	0
Beauty shops	723	31	3	0	3	0
Offices/clinics of medical doctors	801	31	3	0	3	0
Animal services, except veterinary	75	36	2	0	2	0
Industrial gases	2813	36	2	0	2	0
Fertilizers, mixing only	2875	36	2	2	0	0
Petroleum and petroleum products	517	36	2	0	2	0

See footnotes at end of table.

(Continued)

TABLE 6 (Continued).**Small business industries ranked according to combined risk index**

Industry name	SIC	Rank by combined risk index	Combined risk index [†]	Risk scores assigned to the rankings of small business industries by injury, illness, and fatality IRs in Figures 2, 4, and 7*		
				Nonfatal occupational injury IR	Occupational illness IR	Fatal occupational injury IR × 2 [‡]
Motor vehicle dealers (used)	552	36	2	0	0	2
Real estate operators and lessors	651	36	2	0	2	0
Laundry, cleaning, and garment services	721	36	2	0	2	0
Miscellaneous equipment rental and leasing	735	36	2	0	2	0
Offices/clinics of dentists	802	36	2	0	2	0
Child day care services	835	36	2	0	2	0
Services, NEC	891	36	2	0	2	0
Recreational vehicle dealers	556	47	1	1	0	0
Miscellaneous repair shops	769	47	1	1	0	0

*Scores of 0 to 5 were assigned as follows: a ranking of 1–5 in Figures 2, 4, or 7 was assigned a score of 5; a ranking of 6–10 was assigned a score of 4; a ranking of 11–15 was assigned a score of 3; a ranking of 16–20 was assigned a score of 2; a ranking of 21–last ranking was assigned a score of 1; *no ranking* was assigned a score of 0.

†The combined risk index is the total of the risk scores assigned to the rankings of small business industries by injury, illness, and fatality IRs in Figures 2, 4, and 7.

‡2=weighting factor.

§Identical numbers indicate a tie in the ranking.

Stone and Stone Products (SIC 328) and *Trucking Terminal Facilities* (SIC 423), with scores of 15. *Roofing, Siding, and Sheet Metal Work* (SIC 176) and *Camps and Recreational Vehicle Parks* (SIC 703) had combined risk indices scores of 13, and *Landscape and Horticultural Services* (SIC 078) had a score of 11. *Animal and Marine Fats and Oils* (SIC 2077), *Concrete, Gypsum, and Plaster Products* (SIC 327), and *Taxicabs* (SIC 412) each had a combined risk indices score of 10.

Although fatalities were a major contributor to the combined risk index, they did not always drive the rankings in Table 6. The calculation of a combined risk index is another strategy for considering the injury, illness, and fatality data. However, this calculation is not necessarily the most important measure of risk, since prevention efforts can also be implemented on the basis of any of the individual occupational injury and illness measures.

5

Discussion

This report serves as a starting point for identifying the small business industries that are most likely to require additional attention and intervention to improve safety and health conditions.

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Discussion

By drawing from the available data sources for information about the employment totals and the injury, illness, and fatality experiences of various industries, it was possible to determine which small business industries involve the highest risks to the safety and health of workers. This report serves as a starting point for identifying the small business industries that are most likely to require additional attention and intervention to improve safety and health conditions. The report also points out the lack of data for many of the small business industries, indicating a need for better surveillance of these industries.

As part of this report, the morbidity and mortality indices are presented both as absolute measures (estimated number of cases) and IRs. The total counts of injury, illness, and fatality cases by industry indicate the number of employees affected by hazards within given SIC codes. These counts also focus attention on industries in which interventions and hazard controls could affect the greatest number of employees. For example, *Eating and Drinking Places* (SIC 581) leads all other small business industries in the number of nonfatal injuries (365,600) and lost workday cases from injuries and illnesses combined (121,700); this SIC is also the largest small business industry, with more than 449,000 establishments and more than 6.9 million employees. Because the total number of cases do not account for differences in the number of employees in various SIC codes, they do not allow risk comparisons across SIC codes. However, the IRs represent the number of employees affected divided by the number of employees in a given SIC per 100 full-time employees for nonfatal injuries and illnesses and per 100,000 workers for fatal injuries. For example, employees in *Manufacturing of Wood Containers* (SIC 244) experienced 8,100 nonfatal injuries in 1995—16.9 cases per 100 full-time employees. This industry ranks first among all small business industries with data available for injury IR. By comparison, *Eating and Drinking Places* (SIC 581) has an injury IR of 7.4 cases per 100 full-time employees and does not rank in the top 25% of the highest-risk small business industries for nonfatal injuries. Although IRs allow for comparisons across small business industries, they must also be qualified. A case in point is the category of *Soil Preparation Services* (SIC 071). This industry has the third highest fatality rate (115 cases per 100,000 employees) but it is based on only 5 fatal injuries (all associated with transportation incidents) that occurred in 1994 in an industry with only 4,300 employees. This industry also lacks a ranking for occupational injury and illness because too few data were reported for these outcomes. In contrast, employment in *Plumbing, Heating, and Air Conditioning* (SIC 171), which accounted for 57 fatal occupational injuries plus 14 deaths for self-employed workers, ranked only 26th among all small business industries on the basis of its fatal occupational injury IR (8.8 cases per

100,000 employees) as a reflection of the number of persons employed in this SIC code (645,000). Thus for the most complete representation of the risks associated with each small business SIC code, both total numbers of cases and IRs should be considered.

Of all small business industries, those in the *Construction Trades* (Division C) were most consistently listed in the top 25% of the highest-risk small business industries by total cases and IRs for occupational injury, lost workday cases, and fatal occupational injuries. Eight of the 17 small business construction trades were in the top 25% for nonfatal occupational injury IR. *Roofing, Siding, and Sheet Metal Work* (SIC 176) ranked fourth, with 14.6 cases per 100 full-time employees; and *Plumbing, Heating, and Air Conditioning* (SIC 171) ranked sixth, with 12.7 cases per 100 full-time employees. Seven construction trades were also within the top 25% by IR for lost workdays from injuries and illnesses combined. Again, the leading construction industry was *Roofing, Siding, and Sheet Metal Work* (SIC 176), ranking fifth, with 7.8 lost workday cases per 100 full-time employees. *Construction Trades* represented 10 of the top 25% of the highest-risk small business industries based on fatal injuries (for both numbers of cases and IRs). *General Contractors and Operative Builders* (SIC 15) and *Miscellaneous Special Trade Contractors* (SIC 179) together accounted for 373 fatal occupational injuries in 1994, including 54 deaths of self-employed construction workers. Falls, contact with objects and equipment, and transportation incidents (both highway incidents and worker struck by vehicle) were the leading causes of fatal occupational injuries in the small business construction trades. Fewer of the construction trades were listed among the top 25% of the highest-risk small business industries by occupational illnesses (either total cases or IRs). *Concrete Work* (SIC 177) had an illness IR of 0.4 cases per 100 full-time employees (a tie for 12th place), and *Carpentry and Floor Work* (SIC 175) had an illness rate of 0.3 cases per 100 full-time employees (a tie for 16th place).

Many of the 21 small business industries identified in the *Manufacturing Division* (Division D) were listed in the top 25% of the highest-risk small business industries based on IRs for nonfatal injuries (11 manufacturing SIC codes), nonfatal illnesses (9 manufacturing SIC codes), and lost workdays (11 manufacturing SIC codes). Leading the list for nonfatal injury IR was the *Manufacture of Wood Containers* (SIC 244), with a rate of 16.9 cases per 100 full-time employees, followed by the subgroup of *Wood Pallets and Skids* (SIC 2448), with a rate of 16.5 cases per 100 employees, and *Animal and Marine Fats and Oils* (SIC 2077), with a rate of 16.4 cases per 100 employees. Each of these three SIC codes was listed within the top five of the highest-risk small business industries based on lost workday cases from injuries and illnesses combined, with rates of 9.3, 8.4, and 8.2 cases per 100 full-time employees for SICs 2077, 244, and 2448, respectively. *Manufacture of Animal and Marine Fats and Oils* (SIC 2077) also tied for second place based on the IR for nonfatal illness alone (0.7 cases per 100 employees), behind the manufacturing small business industry of *Cut Stone and Stone Products* (SIC 328), with a rate of 0.9 cases per 100 full-time employees. Fewer manufacturing small business industries numbered among the top 25% based on fatal occupational

injuries. *Logging* (SIC 241) had the fourth highest fatal occupational injury IR, with 108 cases per 100,000 employees; *Cut Stone and Stone Products* (SIC 328) followed in fifth place, with 49.6 cases per 100,000 employees.

Of the four small business SIC codes in *Agriculture* (Division A), one was listed more frequently within the top 25% of the highest-risk small business industries based on both morbidity and mortality measures. *Landscape and Horticultural Services* (SIC 078) tied for the following places: 11th place, based on nonfatal illness IR (0.4 cases per 100 full-time employees); 18th place, based on nonfatal injury IR (10.1 cases per 100 full-time employees); and 21st place, based on IR for lost workday cases from injuries and illnesses combined (4.6 cases per 100 full-time employees). SIC 078 also experienced 64 fatal occupational injuries (plus 36 self-employed workers) in 1994, earning a rank of 7th among small business industries by total cases, and 13th based on a fatal occupational injury IR of 21.7 cases per 100,000 employees. An important note is the underrepresentation of agricultural industries in this report. *Agricultural Production Industries Dealing with Crops* (SIC 01) and *Livestock* (SIC 02) were not represented because these industries are excluded from the *County Business Patterns* data collected by the Bureau of the Census [1996]. However, estimates from the 1995 SOII [BLS 1997c] indicate that these two major industry groups combined contained more than 734,000 employees, experienced 51,600 occupational injuries and illnesses (with and without lost workdays) in 1995 [BLS 1997c], and reported 613 fatal occupational injuries in 1994 [BLS 1995].

Within the *Transportation, Communications, and Public Utilities Division* (Division E), *Taxicabs* (SIC 412) rated the highest among all small business industries for fatal occupational injury IR (324 cases per 100,000 employees), followed by *Trucking Terminal Facilities* (SIC 423) (159 cases per 100,000 employees). *Trucking Terminal Facilities* (SIC 423) was also listed among the top five small business industries based on IRs for nonfatal injuries and lost workday cases from injuries and illnesses combined.

From the remaining industry divisions (*Mining*, Division B; *Wholesale Trade*, Division F; *Retail Trade*, Division G; *Finance, Insurance, and Real Estate*, Division H; and *Services*, Division I), several SIC codes appeared more frequently within the 25% of the highest-risk small business industries. Within the *Services* Division, *Laundry, Cleaning, and Garment Services* (SIC 721) ranked among the top 25% for total cases of nonfatal illnesses, injuries, and lost workday cases. *Employment in Camps and Recreational Vehicle Parks* (SIC 703) also ranked in the top 25% based on IRs for illness (0.6 cases per 100 full-time employees), nonfatal injury (10.2 cases per 100 full-time employees), and fatal occupational injury (22.2 cases per 100,000 employees). *Barber Shops* (SIC 724) recorded five occupational injuries in 1994 for an IR of 35.1 cases per 100,000 employees. In the *Retail Trade* Division, *Employment in Gasoline Service Stations* (SIC 554) ranked in the top quartile based on total cases of illness (600 cases), nonfatal injury (23,100 cases), fatal occupational injury (50 cases plus 4 self-employed worker deaths), and lost workday cases from injury and illness combined (10,100 cases). *Dairy Products Stores*

(SIC 545) tied for the second highest occupational illness IR, with 0.7 cases per 100 full-time employees. The fact that some SIC codes from major industry divisions are underrepresented in the rankings may indicate that the workplaces and associated activities for these industries involve fewer occupational hazards. However, it may also indicate that small business industries in these divisions require better surveillance or are less familiar with reporting requirements for occupational injuries and illnesses. As noted previously, data on injuries and illnesses are not available for many of the SIC codes because the SOII is not designed to provide information for them at the four-digit SIC level.

Finally, to consider the three measures of occupational risk together, a combined risk index was calculated by adding the scores assigned to the rankings of small business industries by IRs for nonfatal injuries, illnesses, and fatal occupational injuries in Figures 2, 4, and 7 (see Chapter 4 and Table 6). Under this system, 1 illness is equivalent to approximately 12 injuries, and 1 death is roughly equivalent to 1,301 injuries. Although this combined method of ranking is subjective, it appears to be reasonable based on the recognition that injuries are the most common measure of occupational risk reported, illnesses are grossly underreported, and fatalities are the least common and most severe consequence of exposure to occupational hazards. Among the top 25% of small business industries ranked in Table 6, the following SIC codes appeared consistently, whether the industries were ranked by combined or separate risk scores:

- Division A (*Agriculture*)—*Landscape and Horticultural Services* (SIC 078)
- Division B (*Mining*)—*Crushed and Broken Stone* (SIC 142)
- Division C (*Construction*)
 - Roofing, Siding, and Sheet Metal Work* (SIC 176)
 - Concrete Work* (SIC 177)
 - Miscellaneous Special Trade Contractors* (SIC 179)
 - Excavation Work* (SIC 1794)
 - Water Well Drilling* (SIC 178)
 - Plumbing, Heating, and Air Conditioning* (SIC 171)
 - Painting and Paper Hanging* (SIC 172)
 - Masonry, Stonework, and Plastering* (SIC 174)
 - Carpentry and Floor Work* (SIC 175)
- Division D (*Manufacturing*)
 - Logging* (SIC 241)
 - Cut Stone and Stone Products* (SIC 328)
 - Animal and Marine Fats and Oils* (SIC 2077)
 - Concrete, Gypsum, and Plaster Products* (SIC 327)
 - Wood Containers* (SIC 244)
 - Wood Preserving* (SIC 2491)
 - Industrial and Commercial Machinery and Equipment, NEC* (SIC 3599)
 - Wood Pallets and Skids* (SIC 2448)
- Division E (*Transportation, Communications, and Public Utilities*)
 - Trucking Terminal Facilities* (SIC 423)
 - Taxicabs* (SIC 412)

- Division F (*Wholesale Trade*)
 - Motor Vehicles, Parts, and Supplies* (SIC 501)
 - Lumber and Construction Materials* (SIC 503)
- Division G (*Retail Trade*)—*Dairy Products Stores* (SIC 545)
- Division H (*Finance, Insurance, and Real Estate*)
- Division I (*Services*)
 - Camps and Recreational Vehicle Parks* (SIC 703)
 - Barber Shops* (SIC 724)

The combined risk index is not intended as the paramount measure for ranking and comparing small business industries. However, it does reflect SIC codes that appear more frequently in the top 25% of the highest-risk small business industries based on reported injury, illness, and fatality experience. The ranking by this index may be useful in prioritizing the industries and SIC codes that deserve further investigation to identify and characterize hazards and to develop strategies for their prevention and control. Note that in the ranking by the combined risk index (Table 6), only two small business industries have ranks that are untied. One possible suggestion for breaking the ties would be to consider the number of workers in the competing small business industries listed in Table 3 and to give higher priority to the industry with the greater number of workers. Another method for breaking the ties would be to consider the total cases of injury, illness, and fatal occupational injury and to give priority to industries in which more cases of occupational morbidity and mortality are reported. A third strategy would be to investigate further the nature of the occupational morbidity to determine the severity using lost work time, total compensation costs by industry, average cost per injury or illness, the degree of disability associated with the injuries, and other information.

Costs of job-related injuries and illnesses have also been used previously as an index for ranking industries. Total costs by industry and average costs per employee have been calculated from BLS data for 1985–86 for 8 broad industry divisions and up to as many as 395 specific industries at the three-digit SIC level [Leigh and Miller 1998]. The authors used BLS injury and illness data with workers' compensation data for 8 States from 1985 and 1986. Of the top 100 most costly industries listed, 14 were small business industries identified in this report. The top 5 small business industries based on total cost by industry annual average (1986 dollars) included the following:

	<i>Rank</i>	<i>Average annual costs (in millions)</i>
<i>Trucking and Truck Terminals</i> (SIC 423)	1	\$241.1
<i>Eating and Drinking Places</i> (SIC 581).	2	205.8
<i>Miscellaneous Special Trade Contractors</i> (SIC 179)	7	84.8
<i>Plumbing, Heating, and Air Conditioning</i> (SIC 171)	8	80.2
<i>Logging</i> (SIC 241)	10	76.7

The 5 small business industries with the highest average annual cost for injury and illness per employee (1986 dollars) were as follows:

	<i>Rank</i>	<i>Average annual cost/employee</i>
<i>Logging (SIC 241)</i>	1	\$5,703
<i>Carpentry and Flooring (SIC 175)</i>	9	1,375
<i>Trucking and Truck Terminals (SIC 423)</i>	16	1,115
<i>Roofing, Siding, and Sheet Metal Work (SIC 176)</i>	28	935
<i>Manufacturing of Wood Containers (SIC 244)</i>	30	917

Industry rankings vary depending on which index is used (total industry cost by SIC, average annual cost per employee by SIC, and the combined risk index in Table 6), yet many of the small business industry SIC codes appear consistently at the top of each ranking. The comparability of the rankings is noteworthy, as nearly 10 years separate the comparison periods for which data were collected (1985–86 versus 1994–95). The following small business industry SIC codes were listed at the top of the rankings for all three independent measures (total industry cost by SIC from 1985–86 data, average annual cost per employee by SIC from 1985–86 data, and the combined risk index in Table 6):

- Logging (SIC 241)*
- Trucking and Terminal Facilities (SIC 423)*
- Carpentry and Floor Work (SIC 175)*
- Roofing, Siding, and Sheet Metal Work (SIC 176)*
- Plumbing, Heating, and Air Conditioning (SIC 171)*
- Concrete, Gypsum, and Plaster Products (SIC 327)*
- Masonry, Stonework, and Plastering (SIC 174)*
- General Contractors and Operative Builders (SIC 15)*

In examining the relative costs of occupational hazards by industry, Leigh et al. [1996] ranked the top 50 industries with the highest costs at the three-digit SIC level. The ranking was based on a calculation of the average compensation cost per worker by industry for nonfatal occupational injuries and illnesses in 1992. Of the 50 highest-cost industries, 8 were small business industries, including the following:

- Logging (SIC 241)*
- Taxicabs (SIC 412)*
- Cut Stone and Stone Products (SIC 328)*
- Roofing, Siding, and Sheet Metal Work (SIC 176)*
- Meat and Fish (Seafood) Markets (SIC 542)*
- Water Well Drilling (SIC 178)*
- Concrete Work (SIC 177)*
- Plumbing, Heating, and Air Conditioning (SIC 171)*

One additional reference worth noting is an assessment of causes of death in the workplace by Leigh [1995]. This investigation used BLS data from 11 States collected for 6 years between 1979 and 1986. Fatality rates were determined and used to rank 323 industries. Of the 10 industries with the highest fatality rates for that period, the following 6 were also small business industries recognized in this report:

	<i>Deaths/ 100,000 employees</i>	<i>Rank</i>
<i>Logging (SIC 241)</i>	186	1
<i>Cut Stone and Stone Products (SIC 328)</i>	103	2
<i>Taxicabs (SIC 412)</i>	102	3
<i>Crushed and Broken Stone (SIC 142)</i>	37	5
<i>Trucking and Truck Terminals (SIC 421)</i>	32	8
<i>Miscellaneous Special Trade Contractors (SIC 179)</i>	32	9

Again, these rankings are comparable with those shown in Figure 7: all 6 of the industries above are also ranked among the top 10 small business industries according to occupational fatality rates for 1994. These similarities indicate that many small business industries continue to experience higher numbers and rates of occupational fatalities and reportable injuries and illnesses.

The Next Step

This investigation of high-risk small business industries does not evaluate the variations in injury, illness, and fatality counts and rates by establishment size within industries. For example, injury and illness IRs (with or without lost work time) for *Trucking and Terminal Facilities (SIC 423)* are listed by establishment size for 1995, as follows:

	<i>Injury and illness cases/100 employees</i>
11–49 employees	12.6
50–249 employees	17.8
All establishments in this industry	14.9

According to the 1995 SOII [BLS 1997c], the nonfatal occupational injury IR for all private industry was 7.5 cases per 100 full-time employees, with the following IRs by establishment size groups:

	<i>Injury cases/100 employees</i>
1–10 employees	3.0
11–49 employees	6.5
50–249 employees.	9.6
250–999 employees	8.5
≥1,000 employees	7.8

Generally, this pattern holds true in each of the major industry divisions—with the smallest establishments (1 to 10 employees) recording the lowest injury and illness rates, the medium-size establishments (50 to 249 employees) recording the highest rates, and the largest establishments recording rates that fall somewhere in between. This pattern contradicts that seen with fatal occupational injuries, which occur at higher rates in small business establishments. This difference has been attributed to better reporting of occupational fatalities. Fatality rates by establishment size are shown below:

<i>Fatal injury cases/100,000 employees</i>	
1–19 employees	5.9
20–49 employees	3.3
50–99 employees	2.3
>100 employees.	3.7

These rates were determined using 1994 CFOI data [BLS 1995] for total fatal occupational injuries and *County Business Patterns 1994* data [Bureau of the Census 1996] for employment totals. The fatality rates (which are shown for slightly different establishment size categories because of reporting differences) exclude self-employed worker deaths. For 1,971 of the fatal occupational injuries (37%), the employee’s establishment size was not known. For comparison, the fatality rate for all private industry (excluding self-employed workers) was 4.8 fatal occupational injuries per 100,000 employees.

Further investigation and better surveillance may be required to obtain more accurate measures of injury and illness for industries within the various established size categories. This type of inquiry is a logical next step and could provide useful insight about work processes, equipment, controls, level of training, and other factors that influence worker safety and health and may differ by establishment size.

Additional research within various industries might also indicate the types of hazards and associated injuries for particular occupations and activities. For example, data from the 1995 SOII show that sprains and strains accounted for most (more than a fourth [n=1,167]) of the nonfatal occupational injuries reported in the *Logging Industry* (SIC 241). Sprains and strains were followed by cuts and punctures (815 cases) [BLS 1997c]. The leading event associated with fatal injuries in *Logging* was contact with objects and equipment (79%); more specifically, 75% of deaths in *Timber Cutting and Logging Operations* were caused by being caught in or compressed by objects [BLS 1995]. These objects included plants, trees and vegetation, logs, and industrial vehicles [Leigh 1995]. The literature contains several investigations of job-related diseases and deaths [Leigh 1987; Toscano 1997; Leigh and Miller 1998b] as well as estimated working lifetime risks of fatal occupational injuries by occupation [Fosbroke et al. 1997]. Determining hazards with these and other sources will help focus prevention activities and lead to the development of control strategies, targeted training, and hazard communication efforts.

Study Limitations

The goals of this analysis are straightforward: to identify small business industries and to determine those with the highest risk of occupational injury and illness. However, the means for accomplishing these goals have limitations.

Differing Definitions

An important limitation for accomplishing the study goals is that various agencies define small business establishments differently. This report considers small business establishments to be those with 100 or fewer employees. A review of the literature revealed that this definition recurs frequently and is comparable with the criteria used by several Federal agencies.

Additional investigation may be required to determine differences in the hazards that may exist for “very small establishments”—those with fewer than 20 or even 10 employees. Because establishments with fewer than 100 employees are found in all industries, the criteria for identifying small business industries were further limited to the SIC codes in which 80% of workers were employed in small establishments. This requirement eliminated more than two-thirds of the SIC codes, many of which are likely to contain numerous small business establishments. One example is *Fishing, Hunting, and Trapping* (SIC 09), which in 1994 had a majority of establishments with fewer than 100 employees (n=2,148). Yet this industry also had 20 larger establishments with 40% of the employees in the industry. To identify small business industries consistently according to the criteria established, certain industries with bimodal distributions by establishment size have been omitted.

Regional Differences

This investigation did not account for regional differences by industry. Therefore, the analysis of data at the national level obscures differences in injury and illness rates for industries in various geographical areas of the United States. Such differences are likely and require further investigation for prioritizing high-risk small business industries on a local, State, or regional level.

Information Gaps

County Business Patterns 1994 [Bureau of the Census 1996] was chosen as the most comprehensive recent survey of U.S. businesses for providing employment information by SICs at the four-digit level. Even so, this survey does not include information about self-employed workers, domestic service employees, agricultural production workers, or several other work groups (see Section 2). Newer industries such as those associated with communication and information technologies are not specifically recognized under the present SIC system and therefore cannot be characterized with the existing national databases. In addition, nontraditional employees (mobile or multilocation employees, temporary employees, contractual workers, family members, and volunteers) are not likely to be included in

conventional surveys of the workforce. Addressing these information gaps would more accurately characterize all small business industries, some of which may have been excluded from this investigation as a result of these deficiencies.

Similar limitations were associated with the 1995 SOII [BLS 1997c], which also excludes self-employed workers and farms with fewer than 11 employees (see Section 3). Again, this survey was chosen because it provided the most recent data characterizing the occupational injury and illness experience of industries identified from *County Business Patterns 1994* [Bureau of the Census 1996]. The annual BLS survey is one of the best instruments for characterizing occupational morbidity; yet underreporting of work-related injuries and illnesses is likely because of economic incentives, lack of familiarity with reporting requirements, or other factors [Leigh et al. 1997; Ruser and Smith 1991; Nelson et al. 1992].

The BLS survey data have consistently shown lower morbidity rates for smaller establishments with fewer than 50 employees. Investigations of this phenomenon and comparisons with other data sources (e.g., OSHA fatality records and the 1994 CFOI [BLS 1995]) indicate that underreporting of occupational injuries and especially illness is a substantial possibility among smaller establishments [Mendeloff and Kagey 1990; Oleinick et al. 1995; Murphy et al. 1996; Leigh and Miller 1998a]. The extent and effect of underreporting are difficult to quantify. Acute injuries are more easily recognizable and therefore are probably reported more often. However, conditions related to chronic exposures are least likely to be reported. Recognizing that an illness is work-related or reporting it as such is especially difficult; as a result, estimates of the prevalence of occupational diseases in private industry are especially suspect. Although nonoccupational factors (e.g., smoking habits, substance abuse, physical fitness, and recreational activities) also affect the health of the working population, it is not possible to determine from the BLS data whether morbidity associated with these factors influences estimates of occupational illness. Further epidemiologic investigations of industries would be required to address these issues.

Fatal occupational injury data from the 1994 CFOI [BLS 1995] include information about fatalities among self-employed, agricultural, and other workers (see Chapter 3, subsection entitled *BLS Census of Fatal Occupational Injuries (CFOI)*). This fact required some adjustment to compare data among surveys. To calculate the fatality IR, fatality cases for self-employed workers by each SIC had to be subtracted from the total number of fatality cases for that SIC to allow comparison with the denominator (i.e., employment totals from the *County Business Patterns 1994* [Bureau of the Census 1996]). Elaboration on this topic is provided in Chapter 3 and in the article by Biddle and Kisner [1998].

Finally, characterizing hazards associated with small business industries is further complicated by the lack of data on occupational injuries, illnesses, and fatalities for many of the small business industries at the three- and four-digit SIC levels. However, the data are sufficient for this investigation to characterize the highest-risk small business industries because of the numbers of injuries and illnesses

associated with these industries. The difficulties expressed here emphasize the challenge of accurately characterizing small business industries and identifying associated occupational hazards.



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Appendix

Descriptions of SIC Codes for Small Business Industries

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Descriptions of SIC Codes for Small Business Industries

A.0 Introduction

In this appended section, small business industries are reviewed by industry division. For each small business industry, a description of size characteristics (number and distribution of employees and establishments) is provided as determined from the *County Business Patterns 1994* [Bureau of the Census 1996]. Information about nonfatal occupational injuries and illnesses [BLS 1997c] and fatal occupational injuries [BLS 1995] is also summarized. Providing a comprehensive profile of each industry is beyond the scope of this report; however, potential hazards and health effects of concern are highlighted for some industries, and additional references are cited.

A.1 Division A—Agriculture, Forestry, and Fishing (SIC 01–09)

The SIC for the *Agriculture, Forestry, and Fishing Division* consists of 58 industries at the four-digit level. Within the entire division in 1995, there were 120,800 nonfatal occupational injury and illness cases, with an IR of 9.7 per 100 full-time employees [BLS 1997c]. The total number of occupational fatalities in this division in 1994 was 847; of these, 518 were identified as self-employed. The number of fatalities within this division among the salaried/wage-earning sector of private industry (n=329) constitutes 7.1% of the total for private industry (n=4,617) [BLS 1995].

Only those small business industries identified within the major group *Agricultural Services* (SIC 07) were included in this investigation, as the *County Business Patterns 1994* [Bureau of the Census 1996] data exclude information about farm establishments. The BLS annual survey of nonfatal occupational injuries and illnesses also excludes farms with fewer than 11 employees. The major group, *Agricultural Services*, describes establishments primarily engaged in performing services for others on a contract or fee basis—soil preparation services, crop services, veterinary services, other animal services, farm labor and management services, and landscape and horticultural services. *Agricultural Services* contain 14 subcategories, of which four were identified as small business industries. These four industries are described below.

- ***Soil Preparation Services (SIC 071)*** refers to establishments primarily engaged in land breaking, plowing, application of fertilizer, seed bed preparation, and other services for improving the soil for crop planting. This industry was made up of 630 establishments and 4,339 employees in 1994 [Bureau of the Census 1996]. No data on occupational injury and illness cases for 1995 were reported for this industry by the BLS [BLS 1997c]. Five fatal occupational injury cases were reported for this industry in 1994; all were attributed to transportation incidents [BLS 1995].
- ***Veterinary Services (SIC 074)*** includes establishments of licensed practitioners of veterinary medicine, dentistry, or surgery for cattle, hogs, sheep, goats, and poultry. This industry consisted of 21,549 establishments and 153,309 employees in 1994 [Bureau of the Census 1996]. In 1995, this industry experienced 9,700 cases of nonfatal occupational injuries and illness [BLS 1997c]. A breakdown of fatal occupational injury cases was not available for SIC 074 in the 1994 CFOI.
- ***Animal Services, Except Veterinary (SIC 075)*** describes livestock and animal specialty services other than veterinary services, including grooming, training, boarding, breeding, and pedigree record services. This industry consisted of 9,375 establishments and 39,241 employees in 1994. This industry experienced 3,400 occupational injury and illness cases in 1995, resulting in an IR of 8.6 cases per 100 workers [BLS 1997c]. A breakdown of work-related fatalities was not available for this industry in the 1994 CFOI [BLS 1995].
- ***Landscape and Horticultural Services (SIC 078)*** encompasses landscape planning, lawn and garden services, and ornamental shrub and tree services. In 1994, this industry consisted of 62,228 establishments employing 294,854 workers. Occupational injury and illness cases in 1995 totaled 33,300 for this industry, or an IR of 10.5 per 100 full-time employees. Fatal occupational injury cases for this industry in 1994 totaled 100 (including 36 self-employed workers) associated with the following causes: transportation incidents (33%), contact with objects and equipment (23%), falls (24%), and exposure to harmful substances or environments (17%) [BLS 1995].

A.2 Division B—Mining (SIC 10–14)

This division covers industries that involve the extraction of minerals occurring naturally, including coal and ores, crude petroleum, and natural gas. Division B also describes quarrying, well operations, milling, and other preparation done at a mine site or as a mining-related activity. The *Mining Division* consists of 31 industries at the four-digit SIC level that are grouped according to type of mining: *Metal Mining* (SIC 10), nine industries; *Coal Mining* (SIC 12), four industries; *Oil and Gas Extraction* (SIC 13), five industries; and *Mining and Quarrying of Nonmetallic Minerals Except Fuels* (SIC 14), 13 industries. As a division, the *Mining* industry experienced an estimated 37,800 work-related injury and illness cases in 1995,

resulting in an IR of 6.2 per 100 full-time employees [BLS 1997c]. Occupational fatality cases totaled 180 (including 8 self-employed worker deaths), with leading causes being contact with objects and equipment (34%), transportation incidents (31%), and exposure to harmful substances or environments (15%) [BLS 1995]. For this investigation, a total of 10 small business industries (including four subcategories of larger small business industry categories) were identified in the *Mining* division, as listed below.

- ***Uranium-Radium-Vanadium Ores (SIC 1094)*** describes establishments and employees engaged in mining, milling, and other preparations of these particular ores. There were 57 such establishments and 1,023 employees in this industry in 1994. A breakdown of occupational injury and illness cases was not available for this industry in 1995 [BLS 1997c], and no occupational fatalities were reported in the 1994 CFOI.
- ***Natural Gas Liquids (SIC 132)*** covers establishments and employees engaged in producing liquid hydrocarbons from oil and gas field extractions. This small business industry consisted of 627 establishments employing 14,288 workers in 1994. There was no breakdown of cases of occupational injury and illness for this industry in 1995 [BLS 1997c], and no fatal occupational injury cases were reported in the 1994 CFOI.
- ***Dimension Stone (SIC 141)*** as an industry includes establishments that mine or quarry for dimension stone (e.g., granite, marble, sandstone, and others), and/or are involved in producing rough blocks and slabs. There were 196 such establishments employing 1,475 workers in 1994. There were 300 occupational injury and illness cases reported for this industry in 1995, resulting in an IR of 9.1 per 100 full-time workers [BLS 1997c]. No occupational fatalities were listed for this industry in the 1994 CFOI.
- ***Crushed and Broken Stone (SIC 142)*** encompasses the activities related to *Mining or Quarrying Crushed and Broken Limestone (SIC 1422)*, *Granite (SIC 1423)*, and *Other Stone (SIC 1429)*. This industry was comprised of 2,001 establishments and 37,644 employees in 1994. There were 3,600 occupational injury and illness cases reported for this industry in 1995 and an IR of 5.8 per 100 full-time workers [BLS 1997c]. There were 13 recorded fatal injury cases for this industry in 1994, the leading causes being transportation incidents (39%) and contact with objects and equipment (39%) [BLS 1995].
- ***Crushed and Broken Limestone (SIC 1422)*** is a subcategory of SIC 142 that describes specifically the mining and quarrying of this type of stone. There were 1,316 establishments and 24,312 employees in this industry in 1994. No cases of occupational injury and illness or fatalities were reported at the four-digit SIC-level for this industry during the reference period.

- ***Crushed and Broken Granite (SIC 1423)*** is another small business industry subcategory of SIC 142 that refers to mining and quarrying of crushed and broken granite exclusively. There were 238 establishments and 5,180 employees in this industry in 1994. No cases of occupational injury and illness or fatalities were reported at the four-digit SIC-level for this industry during the reference period.
- ***Sand and Gravel (SIC 144)*** encompasses the activities of *Operating Sand and Gravel Pits and Dredges for Use in Construction (SIC 1442)* and *Other Industrial Applications (SIC 1446)*. This small business industry consisted of 2,459 establishments and 28,552 employees in 1994. There were 1,700 work-related injury and illness cases for this industry in 1995, indicating an IR of 4.9 per 100 full-time workers [BLS 1997c]. There were 8 fatal injury cases recorded for this industry in 1994, the leading cause being transportation incidents (38%). There are concerns about the health effects of exposures to crystalline silica for workers in these industries.
- ***Construction Sand and Gravel (SIC 1442)*** is a small business industry subcategory of SIC 144 limited to products used in construction. There were 2,295 establishments and 25,501 employees associated with this industry in 1994. No cases of occupational injury and illness or fatalities were reported at the four-digit SIC-level for this industry during the reference period.
- ***Industrial Sand (SIC 1446)*** is another small business industry subcategory of SIC 144 limited to products for industrial applications other than construction (e.g., glassmaking, molding, and abrasives). This industry was comprised of 148 establishments and 2,872 employees in 1994. No cases of occupational injury and illness or fatalities were reported at the four-digit SIC-level for this industry during the reference period.
- ***Nonmetallic Mineral Services, Except Fuels (SIC 148)*** is a small business mining industry that involves the removal of overburden, strip mining, and other services for non-metallic minerals for others on a contract or fee basis (e.g., geophysical exploration, boring test holes, mine development, or drainage). There were 143 establishments and 1,618 employees in this industry in 1994. No cases of occupational injury and illness or fatalities were recorded for this industry during the reference period.

A.3 Division C—Construction (SIC 15–17)

The *Construction Division* is composed of 26 industries at the four-digit SIC level. The industries are grouped by the following categories:

- *Building Construction (SIC 15)*, five industries

- *Heavy Construction Other than Building Construction* (SIC 16), four industries
- *Special Trade Contractors* (SIC 17), 17 industries

According to the definition for small business industries used for this investigation, both *Building Construction* (SIC 15) and *Special Trades Contractors* (SIC 17) are small business industries at the two-digit SIC level. Within these two industries there are 17 subcategories that are small business industries. The construction small business industries are described below.

- ***General Contractors and Operative Builders (SIC 15)*** describes construction of residential, farm, industrial, commercial, or other buildings. This is a large small business industry with 187,470 establishments and 1,134,095 employees in 1994. There were 104,700 occupational injury and illness cases in 1995 for this industry, which translates to an IR of 9.8 per 100 full-time workers [BLS 1997c]. Fatal occupational injury cases totaled 191 (including 30 self-employed) in 1994, the leading causes being falls (42%) and transportation incidents (22%).
- ***Special Trade Contractors (SIC 17)*** is a group of 17 industries that collectively employ 2,871,613 workers in 398,568 establishments. Eight subcategories at the three-digit SIC level and eight subcategories at the four-digit SIC level also met the criteria for a small business industry. The number of occupational injuries and illnesses (309,600) and corresponding IR (11.1 per 100 full-time employees) for *Special Trade Contractors* were among the highest of all the small business industries [BLS 1997c]. This industry also had the highest number of fatal injury cases in 1994 with 592 (including 105 self-employed) [BLS 1995]. As with fatalities among SIC 15, the leading causes of fatalities for SIC 17 were falls (39%) and transportation incidents (21%), followed by contact with objects and equipment and exposure to harmful substances or environments (17% each).
- ***Plumbing, Heating, and Air-Conditioning (SIC 171)*** is a small business industry that employed 645,621 workers in 79,636 workplaces in 1994. Occupational injury and illness cases for this industry in 1995 totaled 86,000 for an IR of 12.9 per 100 full-time workers [BLS 1995c]. Fatal injury cases for this industry in 1994 numbered 71 (including 14 self-employed) with more than half (57%) attributed to transportation incidents. This industry ranks among the top 50 industries for average compensation cost per worker by industry for nonfatal occupational injury and illness cases in 1992 [Leigh et al. 1996].
- ***Painting and Paperhanging (SIC 172)*** is a small business industry with 34,627 establishments employing 160,160 workers in 1994. Nonfatal occupational injury and illness cases in this industry in 1995 totaled 11,200, with an IR of 7.3 per 100 full-time workers. There were 40 fatal

injury cases (9 were self-employed) recorded for this industry in 1994, the leading cause being falls (63%). In addition to the fall hazards associated with this industry, exposures to paint pigments and solvents is also an occupational health concern.

- ***Masonry, Stonework, and Plastering (SIC 174)*** is composed of three subcategories at the four-digit SIC level that include: *Masonry, Stone Setting, and Other Stonework* (SIC 1741); *Plastering, Drywall, Acoustical, and Insulation Work* (SIC 1742); and *Terrazzo, Tile, Marble, and Mosaic Work* (SIC 1743). Within SIC 174 there were 48,900 establishments and 397,536 employees in 1994. The industry experienced 37,300 work-related injury and illness cases with an IR of 10.8 in 1995 [BLS 1997c]. Occupational fatalities numbered 53 (11 self-employed) in 1994, with more than half (53%) due to falls and one-third (34%) due to transportation incidents.
- ***Masonry, Stone Setting, and Other Stone Work (SIC 1741)*** is a subcategory of SIC 174 that consisted of 23,550 establishments and 144,400 employees in 1994. There are no cases of occupational injury and illness or fatalities recorded at the four-digit SIC-level for this industry during the reference period.
- ***Terrazzo, Tile, Marble, and Mosaic Work (SIC 1743)*** refers to special trade workers involved in setting and installing ceramic tile, marble, and mosaic. This small business industry consisted of 5,882 establishments and 31,319 employees in 1994. No cases of occupational injury and illness or fatalities were reported at the four-digit SIC-level for this industry during the reference period.
- ***Carpentry and Floor Work (SIC 175)*** consists of two related special trades industries (SIC 1751 and SIC 1752) containing a total of 230,154 employees in 49,464 establishments in 1994. This industry was characterized by 20,100 occupational injury and illness cases in 1995 for an IR of 10.8 per 100 full-time workers. There were 31 (including 11 self-employed) work-related fatal injury cases reported for this industry in the 1994 CFOI. The leading cause of fatalities in this industry was falls (55%), followed by transportation incidents (23%). The following sub-categories of SIC 175 were also identified as small business industries.
- ***Carpentry Work (SIC 1751)*** describes activities such as building and installing cabinets at the job site, framing, store fixture installation, and window and door installation. In 1994, this special trade consisted of 178,713 employees in 37,468 establishments. A breakdown of cases of occupational injury and illness or fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Floor Laying and Other Work, NEC (SIC 1752)*** is another subcategory of SIC 175 that comprised of special trade contractors engaged in the

installation of asphalt tile, carpeting, linoleum, and resilient flooring. The industry also includes the activities of laying, scraping, and finishing parquet and other hardwood flooring. The industry employed 50,223 workers in 10,652 establishments in 1994. A breakdown of cases of occupational injury and illness or fatalities was not available at the four-digit SIC-level for this industry during the reference period.

- **Roofing, Siding, and Sheet Metal Work (SIC 176)** is a small business industry comprised of 215,608 employees in 28,420 establishments in 1994. This industry experienced 25,600 work-related injury and illness cases in 1995, with one of the highest IRs among small business industries (14.8 per 100 full-time workers). Fatal injury cases for this industry in 1994 totaled 89 (including 12 self-employed); more than two-thirds were associated with falls. This industry also ranks 24th among all three-digit SIC industries based on injury and illness cost per employee in 1992 [Leigh et al. 1996].
- **Concrete Work (SIC 177)** is a small business industry describing special trade contractors who work with concrete, Portland cement, and asphalt, primarily in the construction of private drive- and walk-ways. The industry consisted of 16,384 establishments with 26,911 employees in 1994. There were 21,800 occupational injury and illness cases recorded for this industry in 1995, resulting in an IR of 10.6 cases per 100 full-time workers. Fatal injury cases numbered 34 (including 4 self-employed workers) in 1994, the leading causes being contact with objects and equipment (35%) and transportation incidents (27%). This industry ranks 39th among all three-digit SIC industries based on injury and illness cost per employee in 1992 [Leigh et al. 1996].
- **Water Well Drilling (SIC 178)** is a small business industry comprised of 18,816 employees in 3,672 establishments in 1994. This industry experienced 1,900 occupational injury and illness cases in 1995, for an IR of 9.4 per 100 full-time workers. Eight work-related fatalities (including 4 self-employed) were recorded in the 1994 CFOI for this industry. The leading cause of fatalities was exposure to harmful substances or environments (63%), followed by transportation incidents (38%). The water well drilling industry ranked 32nd among all three-digit SIC industries for workers' compensation costs per employee in 1992 [Leigh et al. 1996].
- **Miscellaneous Special Trade Contractors (SIC 179)** is comprised of 6 four-digit SIC industries; four are small business industries (Table 3). In 1994, SIC 179 consisted of 477,190 workers in 60,768 establishments. This industry experienced 45,700 occupational injury and illness cases in 1995, for an IR of 9.6 per 100 full-time workers. Fatal injury cases numbered 182 (including 24 self-employed worker deaths) in 1994. Leading causes of fatal injuries were falls (32%), contact with objects and equipment (31 percent), and transportation incidents (20%). The four subcategories of SIC 179 that are small business industries are listed below.

- ***Glass and Glazing Work (SIC 1793)*** is a small business industry comprised of 4,529 establishments and 31,997 employees in 1994. A breakdown of cases of occupational injury and illness or fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Excavation Work (SIC 1794)*** includes persons and establishments engaged in digging foundations, performing incidental concrete work, grading (except for transportation thoroughfares), and general excavation and loading. This industry consisted of 18,768 establishments with 93,383 employees in 1994. This industry experienced 47 fatal injury cases (including 8 self-employed persons) in 1994. The leading causes of fatalities were contact with objects and equipment (53%) and transportation incidents (36%). A breakdown of cases of occupational injury and illness was not available at the four-digit SIC-level for this industry during the reference period.
- ***Wrecking and Demolition Work (SIC 1795)*** includes activities such as breaking concrete for streets and highways, dismantling steel oil tanks (except oil field work), and demolition and wrecking of buildings or other structures (except marine). This small business industry employed 11,615 workers in 945 establishments in 1994. A breakdown of cases of occupational injury and illness or fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Special Trade Contractors, NEC (SIC 1799)*** covers a broad range of construction activities including construction of swimming pools and fences, erection and installation of ornamental metal work, house moving, shoring work, waterproofing, dampproofing, fireproofing, sandblasting, and steam cleaning of building exteriors. This industry employed 214,386 workers in 27,869 establishments in 1994. There were 46 fatal injury cases (including 10 self-employed persons) in SIC 1799 in 1994, the leading causes being contact with objects and equipment (24%), exposure to harmful substances or environments (24%), and transportation incidents (20%). A breakdown of cases of occupational injury and illness was not available at the four-digit SIC-level for this industry during the reference period.

A.4 Division D—Manufacturing (SIC 20–39)

The *Manufacturing Division*, which employed nearly 18.1 million workers (excluding self-employed persons) in 1994, is dominated by large industries; only 30% of manufacturing workers are employed in workplaces with fewer than 100 employees, 8% in workplaces with fewer than 20 employees, and 4% in places with fewer than 10 employees (Table 2). The *Manufacturing Division* consists of 459 four-digit SIC industries. Only 21 small business industries were identified in this division, 6 at the three-digit SIC-level and 15 at the four-digit SIC-level (Tables 3 and 4).

In 1995, the *Manufacturing Division* experienced 2.1 million nonfatal work-related injuries and illnesses. The division recorded 789 fatal injuries (including 69 self-employed persons) in the 1994 CFOI. Of these fatalities, 188 (24%) occurred in small business industries. Descriptions of the 21 small business industries in the *Manufacturing Division* are provided below.

- ***Prepared Feeds and Feed Ingredients for Animals and Fowls, Except Dogs and Cats (SIC 2048)*** is a small business manufacturing industry that employed 35,110 workers in 1,702 establishments in 1994. This industry experienced 4,400 work-related injury and illness cases in 1995, with an IR of 10.0 cases per 100 full-time workers. Information on fatal injuries was not available at the four-digit SIC level for this prepared feeds industry. In the larger category of *Grain Mill Products (SIC 204)*, there have traditionally been elevated illness rates for dust diseases of the lungs (pneumoconiosis) and disorders associated with repetitive motion.
- ***Animal and Marine Fats and Oils (SIC 2077)*** describes the production of animal oils, including fish oil and other marine animal oils and fish and animal meal. This small business industry employed 35,110 workers in 1,702 establishments in 1994. One hundred percent of the employees in this industry work in establishments with fewer than 100 persons. There were 1,500 work-related injury and illness cases reported for this industry in 1995, with the highest IR among small business industries (17.1 cases per 100 full-time workers). A breakdown of occupational fatality cases was not available at the four-digit SIC-level for this industry during the reference period.
- ***Manufactured Ice (SIC 2097)*** describes establishments primarily involved in manufacturing ice for sale. In 1994, 552 such establishments existed employing 4,454 workers. One hundred percent of the employees in this industry work in establishments with fewer than 100 persons. A breakdown of cases of occupational injury and illness or fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Fur Goods (SIC 237)*** includes establishments that manufacture coats and other clothing, accessories, and trimmings made of fur. This industry consisted of only 686 employees in 161 establishments in 1994. A breakdown of cases of occupational injury and illness or fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Logging (SIC 241)*** describes establishments engaged in cutting timber and in producing rough, round, hewn, or riven primary forest or wood raw materials, or in producing wood chips in the field. This industry employed 84,624 workers in 13,962 establishments in 1994. This industry experienced 7,700 occupational injury and illness cases with an IR of 10.5 in 1995. There were 130 fatal injury cases (including 39 self-employed workers) in this industry in 1994. The leading cause of fatalities was contact with objects and equipment (79%), followed by transportation incidents (19%). In 1994, NIOSH

issued an ALERT publication entitled *Request for Assistance in Preventing Injuries and Deaths of Loggers* [NIOSH 1994]. In addition to this document, NIOSH has also performed fatality assessment and control evaluations in response to fatalities in this field [NIOSH 1993a,b]. In an analysis of fatal injury risk by industry in the United States, the logging industry was determined to have the highest lifetime (45-year work life) injury risk (47/1,000 full-time workers) of any industry [Fosbroke et al. 1997]. Among all three-digit SIC industries, logging ranks number one based on costs for workers' compensation costs per employee in 1992 [Leigh et al. 1996].

- ***Special Products Sawmills, NEC (SIC 2429)*** is a small business industry comprised of 177 workplaces and 1,714 employees in 1994, 100% of whom work in establishments with fewer than 100 employees. It is one of three industries within the larger category of *Sawmills and Planing Mills (SIC 242)* and the only small business industry in the group. Information on occupational injuries, illnesses, and fatalities were not reported separately for *Specialty Product Sawmills*, but the three-digit group experienced 35 fatalities (including four self-employed workers) in 1994, the leading cause being contact with objects and equipment (60%).
- ***Wood Containers (SIC 244)*** is comprised of three subcategories that include *Nailed and Lock Corner Wood Boxes and Shook (SIC 2441)*, *Wood Pallets and Skids (SIC 2448)*, and *Wood Containers, NEC (SIC 2449)*. Only the first two subcategories are also small business industries. The manufacture of wood containers in 1994 employed 42,069 workers in 2,546 establishments. Occupational injury and illness cases for this industry in 1995 totaled 8,200, with one of the highest IRs among small business industries (17.1 cases per 100 full-time workers). There were six reported fatalities for SIC 244 in 1994, four of which were associated with exposure to harmful substances or environments.
- ***Nailed and Lock Corner Wood Boxes and Shook (SIC 2441)*** is a small business industry involved in the manufacture of lumber or plywood boxes and shook for nailed and lock corner boxes. This industry had 299 workplaces and 5,152 employees in 1994. Information on occupational injury and illness cases and fatalities was not reported separately for SIC 2441.
- ***Wood Pallets and Skids (SIC 2448)*** is a small business manufacturing industry comprised of 2,009 workplaces and 31,920 employees in 1994. This industry experienced 6,200 work-related injury and illness cases in 1995, and also had one of the highest IRs among small business industries (16.7 per 100 full-time workers). Information was not available on fatalities at the four-digit SIC-level for this industry during the reference period.
- ***Wood Preserving (SIC 2491)*** is a small business manufacturing industry that includes establishments engaged in treating wood, sawed or planed in other establishments, with creosote or other preservatives to prevent decay

and to protect against fire and insects. This industry contained 474 workplaces and 11,218 employees in 1994. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994.

- ***Industrial Gases (SIC 2813)*** describes establishments engaged in the manufacture of industrial gases in compressed, liquid, and solid forms, including acetylene, argon, carbon dioxide, dry ice, helium, hydrogen, neon, nitrogen, nitrous oxide, and oxygen. This industry had 600 establishments and 7,789 employees in 1994, 92% of whom worked in places with fewer than 100 employees. Industrial gases experienced 600 injury and illness cases in 1995, with an IR of 2.4 cases per 100 full-time workers. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994.
- ***Fertilizers, Mixing Only (SIC 2875)*** is a small business industry comprised of 458 establishments and 7,400 employees engaged in mixing fertilizers from purchased fertilizer materials. This industry experienced 1,000 work-related injury and illness cases in 1995, with an IR of 10.2 cases per 100 full-time workers. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994.
- ***Printing Ink (SIC 2893)*** employed 12,262 workers in 1994 in 518 establishments engaged in the manufacture of gravure ink, screen process ink, and lithographic ink. SIC 2893 had 1,200 work-related injury and illness cases in 1995, with an IR of 8.0 per 100 full-time workers. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994. Printing ink is the only small business industry among the five industries that comprise the group *Miscellaneous Chemical Products (SIC 289)*. For this industry group at the three-digit SIC level, there have traditionally been problems of skin disorders and diseases associated with dermal exposures to chemicals.
- ***Asphalt Paving Mixtures and Blocks (SIC 2951)***, comprised of 1,073 establishments with 11,065 workers in 1994, is the only small business industry within the major group of *Petroleum Refining and Related Industries (SIC 29)*. There were 1,300 occupational injury and illness cases in SIC 2951 in 1995, with an IR of 9.4 cases per 100 full-time workers. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994. For workers in the petroleum manufacturing industries, there is concern for exposure to carcinogens and coke dust [Lee et al. 1986; Lipscomb and Lee 1983].
- ***Concrete, Gypsum, and Plaster Products (SIC 327)*** consists of five sub-categories that include *Concrete Block and Brick (SIC 3271)*; *Concrete Products, Except Block and Brick (SIC 3272)*; *Ready-Mixed Concrete (SIC 3273)*; *Lime (SIC 3274)*; and *Gypsum Products (SIC 3275)*. In 1994, SIC 327 had 9,350 establishments with 173,474 employees. There were 26,600 work-related injury and illness cases associated with this industry in 1995,

with an IR of 12.5 cases per 100 full-time workers. This industry experienced 24 fatal occupational injuries in 1994, the major causes being transportation incidents (50%) and contact with objects and equipment (33%).

The following two subcategories of SIC 327 are also small business industries.

- ***Concrete Block and Brick (SIC 3271)*** employed 15,978 workers in 952 establishments in 1994 primarily engaged in manufacturing concrete building block and brick from a combination of cement and aggregate. The number of injury and illness cases for this industry in 1994 totaled 2,200, with an IR of 11.8 cases per 100 full-time workers. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994.
- ***Ready-Mixed Concrete (SIC 3273)*** covers establishments engaged in manufacturing Portland cement concrete that is delivered to a purchaser in a plastic and unhardened state. There were 5,058 such establishments in 1994 that employed 81,214 workers. This industry reported 12,200 work-related injury and illness cases in 1995, with an IR of 11.7 cases per 100 full-time workers. Fatal occupational injuries were not reported for this industry at the four-digit SIC-level in 1994.
- ***Cut Stone and Stone Products (SIC 328)***, employing 12,097 workers in 931 establishments in 1994, describes the cutting, shaping, and finishing of granite, marble, limestone, slate, and other stone for building and miscellaneous uses. There were 1,200 occupational injury and illness cases in this industry in 1995, with an IR of 9.6 cases per 100 full-time workers. Six fatal occupational injuries occurred in this industry in 1994. Causes of fatalities were not specified [BLS 1995]. Among all three-digit SIC industries, *Cut Stone and Stone Products* ranks 12th based on workers' compensation costs per employee in 1992 [Leigh et al. 1996]. In this industry, there are concerns about the health effects of exposures to airborne silica and other dusts.
- ***Industrial Patterns (SIC 3543)***, covering establishments engaged in manufacturing foundry cores and patterns, is the only small business industry among the nine subcategories comprising the group *Metalworking Machinery and Equipment (SIC 354)*. This industry employed 7,824 workers in 651 establishments in 1994. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Industrial and Commercial Machinery and Equipment, NEC (SIC 3599)*** is a small business industry with 271,999 employees in 23,073 establishments engaged in manufacturing machinery and equipment and parts such as amusement park equipment and flexible metal hose and tubing. This industry experienced 32,400 occupational injury and illness cases in 1995, with an IR of 12.3 cases per 100 full-time workers. Fatalities reported for the three-digit category of *Miscellaneous Industrial and Commercial Machinery*

and Equipment (SIC 359) in 1994 totaled 13, the leading causes being contact with objects and equipment (31%) and falls (31%). A breakdown of fatal occupational injuries was not available at the four-digit SIC-level for this industry during the reference period.

- **Marking Devices (SIC 3953)** is a small business industry comprised of 623 establishments and 8,077 employees engaged in manufacturing rubber and metal hand-stamps, dies, seals, steel letters and figures, and stencils for use in painting or marking. There were 500 injury and illness cases reported for this industry in 1995, with an IR of 6.2 cases per 100 full-time workers. A breakdown of fatal occupational injuries was not available at the four-digit SIC-level for this industry during the reference period.

A.5 Division E—Transportation, Communications, Electric, Gas, and Sanitary Services (SIC 40–49)

This division employed more than 5.7 million workers (excluding self-employed persons) in 1994, almost half (46%) of whom were in establishments with fewer than 100 workers (Table 2). The Division consists of 67 four-digit SIC industries and includes establishments providing to the general public or business enterprises passenger and freight transportation, communications services, or electricity, gas, steam, water, or sanitary services, and all establishments of the U.S. Postal Service. Among all industries in this division, 523,600 work-related injury and illness cases occurred in 1995, with an IR of 9.1 cases per 100 full-time workers. Occupational fatalities for the division totaled 1,001 (including 57 government workers and 83 self-employed workers) in 1994. Roughly two-thirds of the fatalities were associated with transportation incidents.

Within the *Transportation and Public Utility Industries Division*, 12 small business industries were identified (6 at the three-digit SIC level and 6 at the four-digit SIC level). Of these, one is a subcategory of a larger small business industry (i.e., *Travel Agencies* [SIC 4724] within *Passenger Transportation Arrangement* [SIC 472]). Descriptions of the 12 small business industries in the *Transportation and Public Utilities Division* are provided below.

- **Taxicabs (SIC 412)** is a small business industry with 3,378 workplaces and 26,516 employees in 1994, 81% of whom worked in places with fewer than 100 employees and 43% in places with fewer than 20 employees (Table 3). In 1995, this industry experienced 1,700 nonfatal occupational injury and illness cases, with an IR of 6.1 cases per 100 full-time workers. There were 103 occupational fatalities (including 17 self-employed workers) among persons employed in SIC 412. Only 12% of the fatalities were associated with transportation incidents; however, 86% were associated with assaults and violent acts. Among all three-digit SIC-level industries, *Taxicabs* ranks eighth based on workers' compensation costs per employee in 1992 [Leigh et al. 1996]. In a previous NIOSH document characterizing violence in the workplace [Jenkins 1996], *Taxicab Services* were determined to have the highest rate

of work-related homicide (41.4 homicides/100,000 workers), nearly 60 times the national average rate of work-related homicides (0.70 homicides/100,000 workers).

- ***Bus Charter Service, Except Local (SIC 4142)*** consisted of 885 establishments and 18,106 employees in 1994. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period. SIC 4142 makes up more than half of the employment total for the three-digit SIC level group of *Bus Charter Service* (SIC 414) that experienced 1,500 work-related injury and illness cases in 1995 and an IR of 6.1 cases per 100 full-time workers.
- ***Bus Terminal and Service Facilities (SIC 417)*** employed 182 workers in 35 workplaces in 1994. Workers in this industry operate bus terminals and provide maintenance for motor vehicle passenger transportation; these establishments are not operated by companies that also furnish motor vehicle passenger transportation. All of these workplaces had fewer than 100 workers, and more than 63% had fewer than 20 workers (Table 3). Occupational injury and illness and fatalities were not reported at the three-digit SIC-level for this industry during the reference period.
- ***Farm Product Warehousing and Storage (SIC 4221)*** is the only small business industry among four subcategories that comprise *Public Warehousing and Storage* (SIC 422). SIC 4221 had 567 workplaces and 6,052 employees in 1994, more than 81% of whom were in workplaces with fewer than 100 employees (Table 3). A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Trucking Terminal and Joint Terminal Maintenance Facilities for Motor Freight Transportation (SIC 423)*** is a small business industry that describes establishments engaged in the operation of terminal facilities used by highway-type property carrying vehicles. There is some discrepancy between the *County Business Patterns* data and the SOII data concerning this industry: according to the *County Business Patterns*, there were 52 such establishments employing 533 employees in 1994. However, in the 1995 SOII, this industry was estimated to have an average employment of 4,400, with a reported 600 injury and illness cases and an IR of 14.9 per 100 full-time workers. Seven fatalities were reported for this industry in 1994, 43% of these due to transportation incidents.
- ***Ferries (SIC 4482)*** employed 1,606 workers in 117 workplaces in 1994 for operating vessels in the transportation of passengers or vehicles. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period. In the larger category of *Water Transportation of Passengers* (SIC 448), there were 30 fatalities in 1994, the leading cause being transportation

incidents (50%), followed by exposure to harmful substances or environments (30%). The IR for nonfatal occupational injuries and illnesses in SIC 448 was 11.0 cases per 100 full-time workers.

- **Marinas (SIC 4493)** is a small business industry that includes operation of yacht and boat yards, marine basins, and other marinas where boat slips are rented and other boat services such as cleaning and repair are performed. There were 3,763 such facilities employing 18,496 workers in 1994, 99% of whom worked in establishments with fewer than 100 employees, with 73% in establishments with fewer than 20 workers, and 47% in establishments with fewer than 10 employees. Occupational injury and illness and fatalities were not reported at the four-digit SIC-level for this industry during the reference period.
- **Pipelines, NEC (SIC 4619)** is a small business industry comprised of 59 establishments and 264 employees in 1994 engaged in the pipeline transportation of commodities, except crude petroleum, refined products of petroleum, and natural gas. All employees worked in establishments with fewer than 100 workers; more than 73% worked in establishments with fewer than 20 workers; and more than 47% worked in establishments with fewer than 10 employees. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- **Passenger Transportation Arrangement (SIC 472)** is a small business industry comprised of the following three subcategories: *Travel Agencies* (SIC 4724); *Tour Operators* (SIC 4725); and *Arrangement of Passenger Transportation, NEC* (SIC 4729). This industry employed 207,423 workers in 32,160 establishments in 1994. Occupational injury and illness cases reported for this industry in 1995 totaled 1,700, with an IR of less than 1 case per 100,000 workers. Occupational fatalities for SIC 472 totaled 13 (including 4 self-employed workers) in 1994, with 39% of these associated with transportation incidents and another 39% associated with assaults and violent acts.
- **Travel Agencies (SIC 4724)** is a small business industry comprised of establishments furnishing travel information and acting as agents in arranging tours, transportation, rental of cars, and lodging for travelers. There were 28,118 travel agencies employing 162,795 workers in 1994; 87% worked in establishments with fewer than 100 workers. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- **Freight Transportation Arrangement (SIC 473)** covers establishments engaged in furnishing shipping information and acting as agents in arranging transportation for freight and cargo. This small business industry employed 117,767 workers in 13,388 establishments in 1994. There were 9,300

nonfatal work-related injury and illness cases reported for SIC 473 in 1995, with an IR of 6.1 cases per 100 full-time workers. Ten occupational fatalities were recorded for this industry in the 1994 CFOI; 80% were associated with transportation incidents.

- ***Irrigation Systems (SIC 497)*** describes the activities of water distribution or operating supply systems and impounding reservoirs for irrigation. In 1994, this industry consisted of 325 establishments and 1,673 employees. Cases of occupational injury and illness and fatalities were not reported for this industry during the reference period.

A.6 Division F—Wholesale Trade (SIC 50–51)

The *Division of Wholesale Trade* is comprised of 18 three-digit SIC industry groups containing 69 four-digit SIC industries. In 1994, *Wholesale Trade* employed more than 6.3 million workers; nearly 4.7 million (74%) were employed in establishments with fewer than 100 workers. Work-related injury and illness cases among all *Wholesale Trade* industries in 1995 totaled more than 1.6 million, with an IR of 7.5 per 100 full-time workers. There were 270 (including 22 self-employed workers) fatal occupational injuries in *Wholesale Trade* recorded in the 1994 CFOI. Transportation incidents accounted for half of the fatalities, and contact with objects and equipments was responsible for one-fifth of the fatal injury cases.

For this investigation, 45 subcategories of *Wholesale Trade* were identified as small business industries: 9 at the three-digit SIC-level, 36 at the four-digit SIC-level, and 25 of which are subcategories of a larger small business industry. These small business industries within the *Wholesale Trade* are described below.

- ***Motor Vehicles and Motor Vehicle Parts and Supplies (SIC 501)*** consists of 4 four-digit SIC industries; 3 are small business industries. The industry employed a total of 504,484 workers in 46,423 establishments in 1994. There were 48,900 work-related injury and illness cases reported for SIC 501 in 1995, with an IR of 10.7 cases per 100 full-time workers. The industry experienced 24 fatal injury cases recorded in the 1994 CFOI, the leading causes being transportation incidents (58%) and contact with objects and equipment (17%).
- ***Motor Vehicle Supplies and New Parts (SIC 5013)*** is a small business wholesale trade industry that employed 274,902 workers in 27,140 establishments in 1994. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Tires and Tubes (SIC 5014)*** consisted of 3,930 establishments and 47,053 employees in 1994 engaged in the wholesale distribution of tires and tubes for passenger and commercial vehicles. A breakdown of cases of

occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.

- ***Motor Vehicle Parts, Used (SIC 5015)*** was comprised of 6,976 establishments and 42,485 employees in 1994 involved with the distribution at wholesale or retail of used motor vehicle parts. Nearly all (98%) of the employees in this industry worked in establishments with fewer than 100 workers, with 76% in establishments with fewer than 20 workers and 48% in workplaces with fewer than 10 workers. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Furniture and Homefurnishings (SIC 502)*** is a small business industry comprised of two subcategories, *Furniture (SIC 5021)* and *Homefurnishings (SIC 5023)*; both are also small business industries. *Furniture and Homefurnishings* employed 169,461 persons in 16,267 establishments in 1994. Work-related injuries and illnesses in 1995 totaled 9,200, with an IR of 6.5 cases per 100 full-time workers. Six fatal occupational injuries within this industry were recorded in the 1994 CFOI. The causes of the fatalities were not specified.
- ***Furniture (SIC 5021)*** refers to establishments primarily engaged in wholesale distribution of household furniture, office furniture, and furniture for public parks and buildings. This industry employed 72,037 workers in 7,197 establishments in 1994. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Homefurnishings (SIC 5023)*** is the second subcategory of SIC 502 and refers to establishments engaged in the wholesale distribution of homefurnishings and housewares such as antiques, china, glassware, lamps, draperies, linens, and floor coverings. This industry consisted of 8,824 establishments with 97,024 employees in 1994. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Lumber and Other Construction Materials (SIC 503)*** consists of 4 four-digit SIC industries; all are small business industries. The industry designated by SIC 503 employed a total of 232,555 workers in 20,473 workplaces in 1994. Occupational injury and illness cases reported by the industry in 1995 numbered 24,900, with an IR of 10.5 cases per 100 full-time workers. The industry experienced 25 fatal occupational injuries in 1994, the leading causes being transportation incidents (48%), contact with objects and equipment (20%), and exposure to harmful substances or environments (20%). A breakdown of occupational injuries, illnesses, and fatalities was not available at the four-digit level for the following subcategories in either the 1995 SOII or the 1994 CFOI.

- ***Lumber, Plywood, Millwork, and Wood Panels (SIC 5031)***, which employed 122,835 workers in 8,604 establishments in 1994, describes establishments primarily engaged in wholesale distribution of rough, dressed, and finished lumber; plywood; reconstituted wood fiber products; doors, windows, and their frames; and wood fencing.
- ***Brick, Stone, and Related Construction Materials (SIC 5032)*** consisted of 4,618 establishments with 35,532 employees in 1994; 97% worked in establishments with fewer than 100 employees. This small business industry involves the wholesale distribution of stone, cement, lime, construction sand and gravel, asphalt, and concrete mixtures.
- ***Roofing, Siding, and Insulation Materials (SIC 5033)*** is a small business wholesale industry with 2,902 workplaces and 33,514 employees in 1994.
- ***Construction Materials, NEC (SIC 5039)*** is a small business industry with 3,982 workplaces and 39,930 employees in 1994. This industry involves the wholesale distribution of mobile homes and of *Construction Materials, NEC*, including prefabricated buildings and glass.
- ***Commercial Equipment, NEC (SIC 5046)*** is one of seven subcategories of *Professional and Commercial Equipment and Supplies (SIC 504)*. The only small business industry within SIC 504, *Commercial Equipment, NEC* employed 45,117 workers in 5,039 establishments in 1994. These establishments are primarily engaged in wholesale distribution of commercial machines and equipment such as food service equipment, partitions, lockers, store fixtures, electrical signs, and shelving. A breakdown of cases of occupational injury and illness and fatalities was not available at the four-digit SIC-level for this industry during the reference period.
- ***Metals and Minerals, Except Petroleum (SIC 505)*** consists of two small-business wholesale trade industries that collectively employ 144,449 employees in 11,137 workplaces. The industry recorded 18,300 nonfatal occupational injury and illness cases in 1995, with an IR of 12.5 cases per 100 full-time workers. Eight fatal occupational injuries occurred in 1994; half were attributed to contact with objects or equipment.

The following two small business industries are subcategories of SIC 505. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit level for these subcategories in either the 1995 SOII or the 1994 CFOI.

- ***Metals Service Centers and Offices (SIC 5051)*** is a small business industry with 10,246 workplaces and 138,724 employees in 1994. These employees are primarily engaged in marketing semifinished metal products, except precious metals.

- ***Coal and Other Minerals and Ores (SIC 5052)*** is a small business industry employing 5,557 workers in 766 establishments in 1994. This industry involves the wholesale distribution of coal and coke, metal ores, and crude nonmetallic minerals, except crude petroleum.

- ***Electrical Apparatus and Equipment, Wiring Supplies, and Construction Materials (SIC 5063)*** is one of four subcategories of *Electrical Goods* (SIC 506). This small business industry employed 195,300 workers in 18,264 establishments in 1994. These establishments perform wholesale distribution of electrical power equipment. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit level for this industry in either the 1995 SOII or the 1994 CFOI. In the larger category of *Electrical Goods* (SIC 506), there were 6 fatal occupational injuries in 1994 (4 associated with transportation incidents) and an IR for nonfatal occupational injuries and illness of 3.8 cases per 100 full-time workers.

- ***Hardware, Plumbing, and Heating Equipment (SIC 507)*** is comprised of four subcategories; three are also small business industries. In 1994, there were 254,822 employees and 24,808 establishments in SIC 507. Work-related injury and illness cases for this wholesale trade industry totaled 17,800 in 1995, with an IR of 6.4 cases per 100 full-time workers. Nine fatal occupational injuries occurred in this industry in 1994, the leading cause being transportation incidents (67%). The following three small business industries are subcategories of SIC 507. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC-level for these subcategories in either the 1995 or the 1994 CFOI.

- ***Plumbing and Heating Equipment and Supplies (Hydronics) (SIC 5074)*** is a small business wholesale industry that employed 92,224 workers in 9,341 workplaces in 1994.

- ***Warm Air Heating and Air-Conditioning Equipment and Supplies (SIC 5075)*** consisted of 5,506 establishments and 49,661 employees in 1994 engaged in wholesale distribution of furnaces, air pollution control equipment, and air-conditioning equipment.

- ***Refrigeration Equipment and Supplies (SIC 5078)*** employed 12,152 workers in 1,421 establishments in 1994 engaged in the wholesale distribution of refrigeration equipment and supplies.

- ***Machinery, Equipment, and Supplies (SIC 508)*** is a small business industry comprised of six subcategories; four are also small business industries. This specialty wholesale industry was responsible for employing 707,226 workers in 73,344 establishments in 1994. With a total of 54,800 occupational injury and illness cases in 1995, SIC 508 had an IR of 7.1 cases per 100 full-time workers. There were 28 work-related fatalities recorded in the

1994 CFOI for this industry; 57% were due to transportation incidents, and 25% were due to contact with objects and equipment.

The following four small business industries are subcategories of SIC 508. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC level for these subcategories in either the 1995 SOII or the 1994 CFOI.

- ***Farm and Garden Machinery and Equipment (SIC 5083)*** is a small-business wholesale industry with 10,280 workplaces and 103,375 employees in 1994; 96% worked in places with fewer than 100 employees.
- ***Industrial Machinery and Equipment (SIC 5084)*** is a small business industry with 29,854 workplaces and 268,073 employees in 1994. This industry is involved in the wholesale distribution of equipment such as conveyor systems, industrial cranes, elevators, derricks, and cement making machinery.
- ***Industrial Supplies (SIC 5085)*** is a small business wholesale industry with 153,968 employees in 15,678 workplaces in 1994. Types of supplies included in this category are abrasives, barrels, bottles, drums, gaskets, hose, industrial fittings, rope, and twine.
- ***Service Establishment Equipment and Supplies (SIC 5087)*** is a small business industry with 7,392 workplaces and 65,316 employees in 1994. Establishments in this industry are engaged in wholesale distribution of equipment and supplies for barber shops, beauty parlors, power laundries, drycleaning plants, upholsterers, undertakers, and related personal service establishments.
- ***Sporting and Recreational Goods and Supplies (SIC 5091)*** is one of 5 four-digit SIC industries contained in *Miscellaneous Durable Goods* (SIC 509). In 1994, SIC 5091 employed 56,056 workers in 5,730 establishments engaged in wholesale distribution of sporting goods and accessories. A breakdown of occupational injuries, illness, and fatalities was not available at the four digit-level for this subcategory during the reference period. In the larger category of SIC 509, there were 36 fatal occupational injuries (including 6 self-employed workers) in 1994 and a nonfatal occupational injury and illness IR of 8.1 cases per 100 full-time workers in 1995.
- ***Scrap and Waste Materials (SIC 5093)*** describes establishments engaged in assembling, breaking up, sorting, and wholesale distributing of scrap and waste materials. There were 9,079 such establishments in 1994, with 102,395 workers. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC-level for this subcategory of SIC 509 in either the 1995 or the 1994 CFOI.

- ***Industrial and Personal Service Paper (SIC 5113)*** describes the wholesale distribution of wrapping and other coarse paper, paperboard, and converted paper and related disposable plastics products, such as bags, boxes, dishes, eating utensils, napkins, and shipping supplies. There were 5,388 establishments with 67,972 employees in this industry in 1994. No breakdown of occupational injuries, illness, and fatalities at the four-digit SIC-level for this subcategory was provided in either the 1995 SOII or the 1994 CFOI. In the larger category of *Paper and Paper Products* (SIC 511), there were 6 fatalities in 1994 (4 associated with transportation incidents) and an IR for nonfatal occupational injuries and illnesses of 4.9 cases per 100 full-time workers.
- ***Piece Goods, Notions, and Other Dry Goods (SIC 5131)*** is a small-business wholesale industry consisting of 52,100 employees in 5,827 establishments in 1994. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC-level for this category in either the 1995 or the 1994 CFOI. In the larger category of *Apparel, Piece Goods and Notions* (SIC 513), there were no occupational fatalities recorded for 1994 and an IR for nonfatal occupational injuries and illness of 4.6 per 100 full-time workers.
- ***Fish and Seafoods (SIC 5146)*** is a small business wholesale industry that employed 29,511 workers in 3,223 workplaces in 1994. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC-level for this category in either the 1995 or the 1994 CFOI. In the larger category of *Groceries and Related Products* (SIC 514), comprised of 9 four-digit SIC industries, there were 39 fatal occupational injury cases in 1994 (70% were due to transportation incidents) and an IR for work-related injury and illness of 11.6 cases per 100 full-time workers.
- ***Farm-Product Raw Materials (SIC 515)*** consists of 3 four-digit wholesale industries; all are also small business industries. As a group, the three industries employed 104,274 workers in 11,142 establishments in 1994. In 1995, the industry experienced 6,700 nonfatal occupational injury and illness cases, with an IR of 7.1 cases per 100 full-time workers. There were 20 work-related fatal injuries in this industry in 1994; 35% were related to transportation incidents, and 25% attributed to contact with objects or equipment.

The following three small business industries are subcategories of SIC 515. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC-level for these subcategories in either the 1995 or the 1994 CFOI.

- ***Grain and Field Beans (SIC 5153)*** is a small business wholesale industry that employed 58,117 workers in 6,960 workplaces in 1994. All but 2% of the employees in this industry worked in establishments with fewer than

100 employees, and two-thirds worked in establishments with fewer than 20 employees.

- ***Livestock (SIC 5154)*** is a small business wholesale industry with 2,372 workplaces and 31,127 employees in 1994; 99% worked in places with fewer than 100 employees.
- ***Farm Product Raw Materials, NEC (SIC 5159)*** is a small business wholesale industry with 1,717 workplaces and 14,688 employees in 1994. Examples of materials covered by this industry include hops, horses, unprocessed peanuts, furs, pelts, skins, wool, and raw cotton.
- ***Chemicals and Allied Products (SIC 516)*** is a small business wholesale trade industry comprised of two subcategories that are also small business industries. Within SIC 516, there were 150,985 employees in 14,436 establishments in 1994. Occupational injury and illness cases for this industry totaled 8,100 in 1995, with an IR of 5.5 cases per 100 full-time workers. There were no fatalities recorded for this industry in the 1994 CFOI. The following two small business industries are subcategories of SIC 516. A breakdown of occupational injuries and illness was not available at the four-digit SIC-level for these subcategories in the 1995 SOII, and there were no fatalities recorded by the 1994 CFOI.
- ***Plastic Materials and Basic Forms and Shapes (SIC 5162)*** is a small business industry that involves wholesale distribution of plastic materials, film, sheets, rods, tubes, and other basic forms and shapes. In 1994, this industry employed 35,112 persons in 3,524 establishments.
- ***Chemicals and Allied Products, NEC (SIC 5169)*** is a small business industry involving the wholesale distribution of chemicals and allied products such as acids, industrial and heavy chemicals, dyestuffs, industrial salts, rosin, and turpentine. In 1994, 115,680 workers were employed in 10,695 establishments in this industry.
- ***Petroleum and Petroleum Products (SIC 517)*** consists of 2 four-digit SIC subcategories; both are also small business industries. This small business wholesale industry employed 162,814 workers in 14,636 establishments in 1994. The occupational injury and illness case total for this industry was 9,300 in 1995, with an IR of 6.1 cases per 100 full-time workers. This industry experienced 14 fatal occupational injuries in 1994; 70% were linked to transportation incidents. The following two small business industries are subcategories of SIC 517. A breakdown of occupational injuries, illness, and fatalities was not available at the four-digit SIC-level for these subcategories in either the 1995 or the 1994 CFOI.

- ***Petroleum Bulk Stations and Terminals (SIC 5171)*** describes establishments engaged in the wholesale distribution of crude petroleum and petroleum products, including liquefied petroleum gas, from bulk liquid storage facilities. There were 10,562 such establishments in 1994, employing 124,661 workers.
- ***Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals (SIC 5172)*** includes wholesale distributors of bottled petroleum products such as kerosene, lubricating oils and greases, aircraft fueling services, and petroleum brokers. This industry employed 37,663 persons in 3,864 establishments in 1994.
- ***Farm Supplies (SIC 5191)*** is a small business wholesale industry consisting of 16,835 workplaces and 145,383 employees in 1994. There are no data on injury, illness and fatality cases reported for this industry at the four-digit SIC-level in either the 1995 or the 1994 CFOI. In the larger category of *Miscellaneous Nondurable Goods (SIC 519)*, which consists of 6 four-digit SIC industries including SIC 5191, there were 24 fatal injury cases (including four self-employed workers) recorded in the 1994 CFOI. The IR for nonfatal work-related injury and illnesses for SIC 519 in 1995 was 8.1 cases per 100 full-time workers.
- ***Flowers, Nursery Stock, and Florists' Supplies (SIC 5193)*** is a small-business wholesale industry with 4,277 workplaces and 47,618 employees in 1994. There are no data on injury, illness, and fatality cases reported for this industry at the four-digit SIC-level in either the 1995 SOII or the 1994 CFOI. This industry is 1 of 6 four-digit SIC categories within the larger category of *Miscellaneous Nondurable Goods (SIC 519)*, described above in *Farm Supplies (SIC 5191)*.
- ***Paints, Varnishes, and Supplies (SIC 5198)*** is a small business wholesale industry with 3,544 workplaces and 29,051 employees in 1994. There are no data on injury, illness, and fatality cases reported for this industry at the four-digit SIC-level in either the 1995 or the 1994 CFOI. This industry is 1 of 6 four-digit SIC categories within the larger category of *Miscellaneous Nondurable Goods (SIC 519)*, described above in *Farm Supplies (SIC 5191)*.
- ***Nondurable Goods, NEC (SIC 5199)*** is a small business wholesale industry with 17,778 workplaces and 117,097 employees in 1994. There are no data on injury, illness, and fatality cases reported for this industry at the four-digit SIC-level in either the 1995 or the 1994 CFOI. This industry is 1 of 6 four-digit SIC categories within the larger category of *Miscellaneous Nondurable Goods (SIC 519)*, described above in *Farm Supplies (SIC 5191)*.

A.7 Division G—Retail Trade (SIC 52–59)

The *Retail Trade Division* is the second largest division with more than 20 million total employees; 75% work in small business establishments. In 1995, *Retail Trades* experienced more than 1.1 million nonfatal occupational injuries and illnesses and an IR of 7.5 cases per 100 full-time workers. Fatal injuries in 1994 totaled 797, of which 233 were self-employed workers. The leading causes of fatalities in *Retail Trades* were assaults and violent acts (70%), followed by transportation incidents (20%). Within the *Retail Trades Division* there are 64 four-digit SIC industries. For this investigation, 61 small business industries were identified within the *Retail Trades Division* as follows: 33 three-digit SIC industries and 28 four-digit SIC industries. Of the 61 small business industries, 27 were subcategories of a broader small business industry. The small business retail industries are discussed in the following paragraphs.

- ***Paint, Glass, and Wallpaper Stores (SIC 523)*** is a small business retail industry comprised of 10,081 establishments and 47,939 employees in 1994; all worked in establishments with fewer than 100 employees, with 90% in establishments with fewer than 20 employees and 70% in workplaces with fewer than 10 workers. This industry experienced 3,600 work-related injury and illness cases in 1995, with an IR of 6.2 cases per 100 full-time workers. There were no fatalities for SIC 523 recorded in the 1994 CFOI.
- ***Hardware Stores (SIC 525)*** describes retail establishments that specialize in basic hardware items, such as tools, builders' hardware, paint and glass, housewares, and household appliances. In 1994, there were 18,827 such establishments with 140,019 employees; 98% worked in stores with fewer than 100 employees. This retail industry experienced 7,100 nonfatal occupational injuries and illnesses in 1995, with an IR of 5.2 cases per 100 full-time workers. There were four fatal occupational injury cases recorded for *Hardware Stores* in the 1994 CFOI. Causes of the fatalities were not specified.
- ***Retail Nurseries; Lawn and Garden Supply Stores (SIC 526)*** is a small business retail industry with 11,017 workplaces and 72,757 employees in 1994; 98% worked in places with fewer than 100 employees. There were 5,000 work-related nonfatal injury and illness cases for SIC 526 in 1995, with an IR of 6.7 per 100 full-time workers. No fatal injuries were recorded for this industry in the 1994 CFOI.
- ***Mobile Home Dealers (SIC 527)*** is a small business industry that involves the retail sale of new and used mobile homes, parts, and equipment. In 1994, there were 4,294 establishments in this industry and 28,632 employees. Work-related injury and illness cases among mobile home dealers totaled 2,200 in 1995, with an IR of 6.6 cases per 100 full-time workers. There were seven fatal occupational injury cases reported for SIC 527 in the 1994 CFOI. Causes were not specified.

- ***Variety Stores (SIC 533)*** is a small business industry consisting of retail establishments specializing in a variety of merchandise in the low and popular price ranges. There were 13,197 such establishments in 1994, employing 106,709 workers. This industry experienced 9,000 occupational injury and illness cases in 1995, with an IR of 8.9 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Meat and Fish (Seafoods) Markets, Including Freezer (SIC 542)*** is a small business industry consisting of 44,536 employees in 8,480 establishments in 1994. Work-related nonfatal injury and illness cases in this industry totaled 1,600 in 1995, with an IR of 4.1 cases per 100 full-time workers. Among all three-digit SIC-level industries, *Meat and Fish Markets* (SIC 542) ranks 28th based on workers' compensation costs per employee in 1992 [Leigh et al. 1996]. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Fruit and Vegetable Markets (SIC 543)*** is a small business industry specializing in the retail sale of fresh fruits and vegetables. There were 3,108 such establishments in 1994 employing 17,268 workers. This industry reported 1,200 nonfatal occupational injury and illness cases in 1995, with an IR of 5.7 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI. Historically, skin disorders and allergies have been health concerns associated with this industry.
- ***Candy, Nut, and Confectionary Stores (SIC 544)*** is a small business retail industry consisting of 4,940 establishments and 27,829 employees in 1994; more than 99% worked in stores with fewer than 100 employees; 87% were in shops smaller than 20 employees. In 1995, there were 900 occupational injury and illness cases recorded for this industry, with an IR of 4.7 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Dairy Products Stores (SIC 545)***, referring specifically to the retail sale of butter, cheese, packaged ice cream, milk, and other dairy products, is a small business industry comprised of 2,338 establishments and 8,967 employees in 1994. All *Dairy Products Stores* in 1994 were smaller than 100 employees; more than 82% of all employees were found in establishments with fewer than 20 workers; and 61% of all workers were employed in stores with fewer than 10 employees (Table 3). An estimated 500 nonfatal work-related injury and illness cases occurred in SIC 545 in 1995, with an IR of 4.7 per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Miscellaneous Food Stores (SIC 549)*** is another small business food industry that involves the retail sale of specialized foods such as eggs, poultry, health foods, spices, herbs, coffee, and tea. There were 9,316 such food stores in 1994, employing 46,362 employees; more than 97% worked in

stores with fewer than 100 employees. This industry experienced 1,800 occupational injury and illness cases in 1995, with an IR of 3.6 per 100 full-time workers. No fatalities were listed for SIC 549 in the 1994

- ***Motor Vehicle Dealers (Used Only) (SIC 552)*** is a small business retail industry consisting of 19,569 establishments and 72,847 employees in 1994; nearly two-thirds work in places with fewer than 10 employees. This industry experienced 1,700 nonfatal work-related injury and illness cases in 1995, with an IR of 2.3 cases per 100 full-time workers. There were 10 fatal work injuries in this industry in 1994, 60% of these related to transportation incidents.
- ***Auto and Home Supply Stores (SIC 553)*** describes establishments that specialize in the retail sale of new automobile tires, batteries, and other automobile parts and accessories. These establishments frequently sell home appliances, radios, and television sets as well. In 1994, there were 294,733 persons employed in this industry in 41,338 establishments. Nearly all (99%) employees worked in stores with fewer than 100 employees, and 78% worked in stores with fewer than 20 employees. There were 33,300 nonfatal occupational injury and illness cases in this industry in 1995, with an IR of 9.2 cases per 100 full-time workers. There were 16 fatal work injuries in SIC 553 in 1994, the leading causes being transportation incidents (50%) and assaults and violent acts (38%).
- ***Gasoline Service Stations (SIC 554)*** is a small business industry consisting of 99,250 stations and 692,240 employees in 1994; more than 96% work in stations with fewer than 100 employees; half work in places with fewer than 10 employees. In 1995, the *Gasoline Service Station* industry experienced 23,700 nonfatal occupational injuries and illnesses, with an IR of 4.4 cases per 100 full-time workers. There were 54 (including 4 self-employed workers) fatal work injury cases recorded for SIC 554 in 1994; 80% of these were due to assaults and violent acts, and 15% were due to transportation incidents.
- ***Boat Dealers (SIC 555)*** employed 28,925 persons in 1994 in 4,778 establishments; all were smaller than 100 employees. Work-related injury and illness cases in 1995 totaled 1,800 for SIC 555, with an IR of 5.9 cases per 100 full-time workers. No fatal occupational injury cases were recorded for this industry in the 1994 CFOI.
- ***Recreational Vehicle Dealers (SIC 556)***, describing establishments engaged in the retail sale of new and used motor homes, recreational trailers, and campers, employed 25,593 persons in 2,850 establishments in 1994. This industry experienced 2,200 nonfatal occupational injury and illness cases in 1995, with an IR of 9.3 cases per 100 full-time workers. No fatalities were listed for this SIC 556 in the 1994 CFOI.

- ***Motorcycle Dealers (SIC 557)*** consisted of 3,605 workplaces and 24,984 employees in 1994, more than 98% of whom were in places with fewer than 100 employees and 78% in establishments smaller than 20 employees. This industry experienced 700 nonfatal occupational injury and illness cases in 1995, with an IR of 2.5 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Automotive Dealers, NEC (SIC 559)*** is a small business industry engaged in the retail sale of automotive vehicles, utility trailers, and automotive equipment and supplies such as snowmobiles, dunebuggies, go-carts, and aircraft. In 1994, there were 936 establishments and 4,357 employees in this industry; all were in workplaces with fewer than 100 workers. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry, and no fatalities were listed for SIC 559 in the 1994 CFOI.
- ***Men's and Boy's Clothing and Accessory Stores (SIC 561)*** employed 106,542 persons in 14,646 establishments in 1994. This industry experienced 2,100 occupational injury and illness cases in 1995, with an IR of 2.1 cases per 100 full-time workers. No fatalities were indicated for this specific industry in the 1994 CFOI.
- ***Women's Clothing Stores (SIC 562)*** consisted of 47,715 stores employing 419,793 persons in 1994. Nonfatal occupational injury and illness cases for this industry totaled 6,900 in 1995, with an IR of 3.3 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Women's Accessory and Specialty Stores (SIC 563)*** consisted of 8,291 stores and 45,485 employees in 1994. Nearly all (98%) employees were in stores with fewer than 100 workers, with 90% in stores with fewer than 20 workers and 60% in stores with fewer than 10 employees. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry, and no fatalities were listed for SIC 563 in the 1994 CFOI.
- ***Children's and Infants' Wear Stores (SIC 564)*** employed 38,368 persons in 5,264 establishments in 1994. This industry recorded 700 nonfatal work injuries and illnesses in 1995, with an IR of 2.9 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Shoe Stores (SIC 566)*** consisted of 34,795 establishments and 184,533 employees in 1994; 91% were in stores with fewer than 20 employees, and 71% were in stores with fewer than 10 workers. There were 4,000 nonfatal work injury and illness cases in this industry in 1995, with an IR of 2.7 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.

- ***Miscellaneous Apparel and Accessory Stores (SIC 569)*** numbered 9,458 establishments with 47,451 employees in 1994. This industry experienced 1,800 nonfatal occupational injury and illness cases in 1995, with an IR of 2.9 cases per 100 full-time workers. No fatalities were listed for this specific industry in the 1994 CFOI.
- ***Home Furniture and Homefurnishings Stores (SIC 571)*** is a small business industry comprised of 4 four-digit SIC subcategories; all are also small business industries. SIC 571 employed 451,368 persons in 66,783 establishments in 1994. This retail industry experienced 30,900 nonfatal occupational injury and illness cases in 1995, with an IR of 7.2 cases per 100 full-time workers. Fatal injury cases in 1994 totaled 16 (including 7 self-employed persons) for this industry, the leading causes being assaults and violent acts (69%) and transportation incidents (25%).
- ***Furniture Stores (SIC 5712)***, engaged in the retail sale of household furniture, included 32,828 establishments in 1994 with 252,493 employees. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry at the four-digit SIC-level, and no fatalities were listed for SIC 5712 in the 1994 CFOI.
- ***Floor Covering Stores (SIC 5713)*** is a small business retail industry with 14,165 workplaces and 72,792 employees in 1994; more than 98% worked in places with fewer than 100 employees, and more than half worked in places with fewer than 10 employees. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry, and no fatalities were listed for SIC 5713 in the 1994 CFOI. For workers in this industry who may incidentally perform installation, health concerns include developing musculoskeletal disorders and exposure to solvents as a result of laying floor coverings [Evans and Wilcox 1978].
- ***Drapery, Curtain, and Upholstery Stores (SIC 5714)*** is a small business retail industry consisting of 2,670 establishments and 10,867 employees in 1994; all worked in stores with fewer than 100 employees. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry, and no fatalities were listed for SIC 5714 in the 1994 CFOI.
- ***Miscellaneous Homefurnishings Stores (SIC 5719)*** includes establishments engaged in the retail sale of miscellaneous homefurnishings such as kitchen ware; bedding and linen; brooms and brushes; lamps, mirrors and pictures; and window shades. This industry employed 114,772 workers in 16,813 stores in 1994. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry, and no fatalities were listed for SIC 5719 in the 1994 CFOI.
- ***Household Appliance Stores (SIC 572)*** is a small business retail industry comprised of 9,642 workplaces and 60,676 employees in 1994. Nonfatal

work injury and illness cases in 1995 totaled 5,200 for this industry, with an IR of 7.2 cases per 100 full-time workers. No fatalities were listed for SIC 572 in the 1994 CFOI.

- ***Radio, Television, and Computer Stores (SIC 573)***, a small business retail industry, contains 4 four-digit SIC subcategories; all are also small business industries. This industry group employed 135,170 persons in 16,901 stores in 1994. There were 10,500 nonfatal occupational injury and illness cases reported for this industry in 1995, with an IR of 3.3 cases per 100 full-time workers. SIC 573 experienced 15 fatal injury cases (including 5 self-employed workers) in 1994, most due to assaults and violent acts (60%) and the remainder related to transportation incidents (40%).
- ***Radio, Television, and Consumer Electronics Stores (SIC 5731)*** employed 135,170 persons in 16,901 stores in 1994. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry at the four-digit SIC-level, and no fatalities were listed for SIC 5731 in the 1994 CFOI.
- ***Computer and Computer Software Stores (SIC 5734)*** is a small business retail industry consisting of 7,479 stores and 47,635 employees in 1994. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry at the four-digit SIC-level, and no fatalities were listed for SIC 5734 in the 1994 CFOI.
- ***Record and Prerecorded Tape Stores (SIC 5735)*** included 8,714 establishments that employed 135,170 persons in 1994; 98% worked in stores with fewer than 100 persons. Information on nonfatal work injury and illness cases in 1995 was not listed for this industry at the four-digit SIC-level, and no fatalities were listed specifically for SIC 5735 in the 1994 CFOI.
- ***Musical Instrument Stores (SIC 5736)*** is a small business retail industry consisting of 4,138 stores and 24,916 employees in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry, and the fatal injury cases for SIC 573 do not specify cases by four-digit SIC-level in the 1994 CFOI.
- ***Eating and Drinking Places (SIC 581)*** is a small business industry comprised of 2 four-digit SIC subcategories, both of which are small businesses. Within SIC 581, which includes retail establishments selling prepared foods and drinks for consumption on the premises, there were 449,089 establishments with 6,928,226 employees in 1994. This group experienced 379,200 work-related injuries and illnesses in 1995, with an IR of 7.6 per 100 full-time employees. SIC 581 was second only to the major group of *Special Trades Contractors (SIC 17)* in the total number of work-related fatalities with 181 (including 33 self-employed workers); 75% of these were due to assaults and violent acts.

- ***Eating Places (SIC 5812)*** is a small business industry that employed 6,476,992 workers in 367,205 establishments in 1994. This industry experienced 119 fatal injury cases in 1994 (including 21 self-employed workers); 73% were due to assaults and violent acts. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry.
- ***Drinking Places (SIC 5813)***, a subcategory of the small business industry designated by SIC 581, includes establishments primarily engaged in the retail sale of alcoholic drinks (i.e., beer, ale, wine, and liquor) for consumption primarily on the premises. In 1994, there were 52,874 such establishments with 310,238 employees; 95% were in establishments with fewer than 100 workers. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry. There were 38 fatal work injuries (including 11 self-employed workers) recorded for *Drinking Places* in 1994, 92% of these were attributed to assaults and violent acts.
- ***Drug Stores and Proprietary Stores (SIC 591)***, engaged primarily in the retail sale of prescription drugs, proprietary drugs, and non-prescription medicines, employed 583,486 persons in 45,676 stores in 1994. This industry recorded 13,300 nonfatal occupational injury and illness cases in 1995, with an IR of 3.2 cases per 100 full-time workers. Seven fatal work injuries occurred in *Drug Stores* in 1994, with 57% of these due to transportation incidents.
- ***Liquor Stores (SIC 592)*** included 29,554 establishments with 128,727 employees in 1994; nearly all (99%) worked in stores with fewer than 100 workers, and two-thirds were in stores with fewer than 10 employees. Nonfatal occupational injury and illness cases reported for *Liquor Stores* totaled 2,000 in 1995, with an IR of 2.5 cases per 100 full-time workers. There were 22 fatal injuries (including 12 self-employed workers) that occurred in this industry in 1994; all were attributed to assaults and violent acts.
- ***Used Merchandise Stores (SIC 593)*** is a small business retail industry involving the retail sale of used merchandise, antiques, and secondhand goods. This industry was comprised of 21,622 stores and 111,719 employees in 1994. Nonfatal occupational injury and illness cases for SIC 593 totaled 3,600 in 1995, with an IR of 4.5 cases per 100 full-time workers. There were 22 fatal work injury cases (including 7 self-employed workers) in *Used Merchandise Stores* in 1994, the leading cause being assaults and violent acts (77%).
- ***Miscellaneous Shopping Goods Stores (SIC 594)*** is a small business industry with 9 four-digit subcategories; all are also small business industries. In 1994, these miscellaneous retail stores numbered 126,594 and employed 785,116 persons. Among all types of *Miscellaneous Shopping Goods Stores*, a total of 26,200 nonfatal injury and illness cases occurred in 1995, with an IR

of 3.8 cases per 100 full-time workers. There were 19 fatal injury cases (including 11 self-employed workers) recorded for this industry in 1994, 90% due to assaults and violent acts.

- ***Sporting Goods Stores and Bicycle Shops (SIC 5941)*** consisted of 24,456 stores and 157,121 employees in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities were listed specifically for SIC 5941 in the 1994 CFOI.
- ***Book Stores (SIC 5942)*** consisted of 13,520 stores and 102,380 employees in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities were listed specifically for SIC 5942 in the 1994 CFOI.
- ***Stationery Stores (SIC 5943)*** employed 23,081 workers in 4,179 stores in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC level for this industry in 1995, and no fatalities are listed specifically for SIC 5943 in the 1994 CFOI.
- ***Jewelry Stores (SIC 5944)*** consisted of 26,995 stores and 141,748 employees in 1994, 86% of whom worked in stores with fewer than 20 persons. A breakdown of nonfatal work injuries and illnesses and fatalities was not available at the four-digit SIC-level for this industry in the BLS surveys.
- ***Hobby, Toy, and Game Shops (SIC 5945)*** employed 93,976 workers in 10,402 workplaces in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities are listed specifically for SIC 5945 in the 1994 CFOI.
- ***Camera and Photographic Supply Stores (SIC 5946)*** consisted of 2,958 stores and 17,704 employees in 1994; all worked in establishments with fewer than 100 employees. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities are listed specifically for SIC 5946 in the 1994 CFOI.
- ***Gift, Novelty, and Souvenir Shops (SIC 5947)*** employed 179,249 persons in 34,402 workplaces in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities are listed specifically for SIC 5947 in the 1994 CFOI.
- ***Luggage and Leather Goods Stores (SIC 5948)*** included 1,921 stores and 11,031 employees in 1994. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities are listed specifically for SIC 5948 in the 1994 CFOI.

- ***Sewing, Needlework, and Piece Goods Stores (SIC 5949)*** consisted of 7,497 stores with 58,579 employees in 1994, 98% of whom worked in stores smaller than 100 employees. A breakdown of nonfatal work injury and illness cases was not available at the four-digit SIC-level for this industry in 1995, and no fatalities are listed specifically for SIC 5949 in the 1994 CFOI.

- ***Direct Selling Establishments (SIC 5963)*** is a small business industry within the larger category of *Nonstore Retailers* (SIC 596). *Direct Selling Establishments* involve the retail sale of merchandise by telephone, by house-to-house canvass, or from trucks, wagons, or other temporary locations. There were 13,207 such establishments with 119,526 employees in 1994. While a breakdown of nonfatal work injury and illness cases or fatal injury cases was not available at the four-digit SIC-level for this industry during the reference period, the larger category of *Nonstore Retailers* (SIC 596) had an IR of 7.4 nonfatal injury and illness cases per 100 workers in 1995. SIC 596 recorded 32 fatal injury cases (including 22 self-employed workers) in 1994; 63% were due to transportation incidents, and the remainder were due to assaults and violent acts.

- ***Fuel Dealers (SIC 598)*** contains 3 four-digit subcategories; all are small business industries. In 1994, *Fuel Dealers* included 11,142 establishments with 89,262 employees. There were 7,400 nonfatal occupational injury and illness cases for this industry in 1995, with an IR of 8.0 per 100 full-time workers. Ten fatal injury cases occurred in this industry in 1994, the leading cause being transportation incidents (40%). The subcategories of SIC 598 are described below.

- ***Fuel Oil Dealers (SIC 5983)*** is a small business industry consisting of establishments engaged in the retail sale of fuel oil. This industry had 4,859 workplaces and 45,632 employees in 1994. A breakdown of workplace injuries, illness, or fatalities was not available at the four-digit SIC-level for this industry in the BLS data during the reference period.

- ***Liquefied Petroleum (Bottled Gas) Dealers (SIC 5984)*** is a small business retail industry with 5,940 workplaces and 42,705 employees; more than 99% worked in places with fewer than 100 employees, and 82% worked in places with fewer than 20 employees. A breakdown of workplace injuries, illness, or fatalities was not available for this industry in the BLS data during the reference period.

- ***Fuel Dealers, NEC [5989]*** is a small business industry describing establishments engaged in the retail sale of coal, wood, or other fuels, *NEC*. This industry employed 876 persons in 309 workplaces in 1994. A breakdown of workplace injuries, illness, or fatalities was not available at the four-digit SIC-level for this industry in the BLS data during the reference period.

- ***Retail Stores, NEC (SIC 599)*** is a small business industry comprised of 5 four-digit SIC subcategories; all are small business industries. SIC 599 employed 421,359 persons in 90,164 establishments in 1994. Occupational injury and illness cases for this industry totaled 12,000 in 1995, with an IR of 3.3 cases per 100 full-time workers. *Retail Stores, NEC* recorded 26 fatal injury cases (including 11 self-employed workers) in 1994; the leading causes were assaults and violent acts (58%) and transportation incidents (31%). Subcategories of SIC 599 are described below.
- ***Florists (SIC 5992)***, specializing in the retail sale of cut flowers and growing plants, included 26,757 workplaces and 120,354 employees in 1994; 99% work in places with fewer than 100 employees and more than 60% work in places with fewer than 10 employees. A breakdown of workplace injuries, illness, and fatalities was not available at the four-digit SIC-level for this industry in the BLS data during the reference period.
- ***Tobacco Stores and Stands (SIC 5993)*** is a small business industry specializing in the retail sale of cigarettes, cigars, tobacco, and smokers' supplies. There were 1,655 such stores with 7,146 employees in 1994; more than 95% worked in stores with fewer than 100 employees. A breakdown of workplace injuries, illness, and fatalities was not available for this industry in the BLS data during the reference period.
- ***News Dealers and Newsstands (SIC 5994)***, specializing in the retail sale of newspapers, magazines, and other periodicals, consisted of 2,310 establishments and 9,247 employees in 1994; nearly two-thirds worked in stores with fewer than 10 employees. A breakdown of workplace injuries, illness, and fatalities was not available at the four-digit SIC-level for this industry in the BLS data during the reference period.
- ***Optical Goods Stores (SIC 5995)*** consisted of 14,318 establishments and 73,120 employees in 1994 engaged in the retail sale of eyeglasses and contact lenses to prescription for individuals. Nearly all (99%) employees in this industry worked in stores with fewer than 100 workers, with 76% in stores with fewer than 20 workers. A breakdown of workplace injuries, illness, and fatalities was not available at the four-digit SIC-level for this industry in the BLS data during the reference period.
- ***Miscellaneous Retail Stores, NEC (SIC 5999)*** describes establishments engaged in retail sale of specialized lines of merchandise such as artists' supplies, orthopedic and artificial limbs, rubber stamps, pets, religious goods, and monuments and tombstones. There were 210,825 persons employed in 44,558 such retail stores in 1994. More than half (54%) of the employees in this industry were in establishments with fewer than 10 workers, and 97% were in establishments with fewer than 100 employees. A breakdown of workplace injuries, illnesses, and fatalities was not available at the four-digit SIC-level for this industry in the BLS data during the reference period.

A.8 Division H—Finance, Insurance, and Real Estate (SIC 60–67)

This industry division, which consists of 30 three-digit SIC subcategories and 53 four-digit industries, employed more than 7 million persons in 1994; nearly 60% worked in establishments with fewer than 100 workers. Within this division in 1994, there were 5 three-digit SIC industries and 3 four-digit SIC subcategories identified as small business industries, 1 of which is a subcategory of a broader small business industry. The eight small business industry categories within Division H are discussed below.

- **Credit Unions (SIC 606)** is the only small business industry within the major group of *Depository Institutions* (SIC 60). *Credit Unions* is comprised of 2 four-digit SIC subcategories: *Credit Unions, Federally Chartered* (SIC 6061) and *Credit Unions, Not Federally Chartered* (SIC 6062). Collectively, *Credit Unions* employed 151,685 employees in 15,142 establishments in 1994. This industry experienced 2,200 nonfatal occupational injury and illness cases in 1995, with a relatively low IR among small business industries of 2.2 cases per 100 full-time workers. Fatal occupational injury cases were not recorded for this specific industry in the 1994 CFOI.
- **Insurance Agents, Brokers, and Services (SIC 641)** is a major group comprised of only 1 four-digit SIC subcategory (SIC 6411) designated by the same industry name. This industry is comprised of agents primarily representing one or more insurance carriers or performing the placement of insurance contracts with carriers. In 1994, there were 123,998 such establishments employing 661,685 persons. This industry experienced 7,600 nonfatal occupational injury and illness cases in 1995, with a relatively low IR among small business establishments of 1.2 cases per 100 full-time workers. Eleven fatal injury cases occurred in SIC 641 in 1994; 54% were attributed to transportation incidents.
- **Real Estate Operators and Lessors (SIC 651)** consisted of 99,852 establishments with 483,250 employees in 1994. Nonfatal occupational injury and illness cases for this industry totaled 32,100 in 1995, with an IR of 7.1 cases per 100 full-time workers. There were 31 fatal work injury cases (including 4 self-employed workers) among *Real Estate Operators and Lessors* in 1995; the leading causes were assaults and violent acts (45%), followed by contact with objects and equipment (16%), exposure to harmful substances or environments (16%), and falls (13%).
- **Title Abstract Offices (SIC 654)** includes establishments engaged in searching real estate titles. There were 4,881 such establishments with 42,593 employees in 1994. Nonfatal work injury and illness cases for SIC 654 totaled 200 in 1995, with one of the lowest recorded IRs among small business industries of 0.9 cases per 100 full-time workers. No fatalities were recorded for this specific industry in the 1994 CFOI.

- ***Land Subdividers and Developers (SIC 655)*** is a small business industry comprised of 2 four-digit SIC subcategories; 1 is also a small business industry. SIC 655 employed 106,235 workers in 16,912 workplaces in 1994. This industry experienced 7,300 occupational injury and illness cases in 1995, with an IR of 7.7 cases per 100 full-time workers. No fatalities were recorded for this industry in the 1994 CFOI.
- ***Cemetery Subdividers and Developers (SIC 6553)***, a subcategory of SIC 655, is a small business industry engaged in subdividing real property into cemetery lots and in developing the property for resale on their own account. This industry employed 43,929 persons in 6,263 establishments in 1994. A breakdown of injury and illness cases was not available at the four-digit SIC-level for this industry in the BLS data. No fatalities were recorded for this specific industry or the broader category of SIC 655 in the 1994 CFOI.
- ***Oil Royalty Traders (SIC 6792)*** is a small business industry that consisted of 698 establishments with 2,436 employees in 1994; all worked in establishments with fewer than 100 employees. A breakdown of injury and illness cases was not available at the four-digit SIC-level for this industry in the BLS data. No fatalities were recorded for this specific industry or the broader category of SIC 679 in the 1994 CFOI. The IR for nonfatal injury and illness cases for the broader category of *Miscellaneous Investing* (SIC 679) was 1.1 cases per 100 full-time workers in 1995.
- ***Investors, NEC (SIC 6799)*** is a small business industry that includes commodity contract pool operators, investment clubs, venture capital companies, and commodity contract trading companies. There were 4,975 such establishments employing 23,261 employees in 1994. A breakdown of injury and illness cases was not available at the four-digit SIC-level for this industry in the BLS data. No fatalities were recorded for this specific industry or the broader category of SIC 679 in the 1994 CFOI. The IR for nonfatal occupational injury and illness cases for the broader category of *Miscellaneous Investing* (SIC 679) was 1.1 cases per 100 full-time workers in 1995.

A.9 Division I—Services (SIC 70–89)

This is the largest industry division included in the *County Business Patterns 1994*, employing more than 33 million persons; 16.6 million (50%) work in establishments with fewer than 100 employees. The *Services Division* consists of 150 four-digit SIC industries. For this investigation, 75 small business industries were identified in the *Services Division*, either at the three- or four-digit SIC-level. Among all *Service Division* industries, there was an IR of 6.4 cases of nonfatal work injuries and illness per 100 full-time workers in 1995. Fatal occupational injury cases totaled 905 (including 61 government workers and 143 self-employed workers) in 1994; 42% were due to transportation incidents, and 30% were due to assaults and violent acts. The small business industries within the *Services Division* are discussed below.

- ***Rooming and Boarding Houses (SIC 702)*** consists of 1 four-digit SIC subcategory (SIC 7021) designated by the same name. This industry, engaged in renting rooms with or without board on a fee basis, employed 8,192 workers in 1,627 establishments in 1994. A breakdown of injury and illness cases was not available at the three-digit SIC-level for this industry in the BLS data. No fatalities were reported for this industry in the 1994 CFOI.
- ***Camps and Recreational Vehicle Parks (SIC 703)*** is a small business industry comprised of 2 four-digit SIC subcategories; both are also small business industries. In 1994, there were 6,645 *Camps and Recreational Vehicle Parks* employing 31,418 persons. This industry experienced 3,100 occupational injury and illness cases in 1995, with an IR of 10.8 cases per 100 full-time workers. Seven occupational fatality cases occurred in this industry in 1994, the leading cause being transportation incidents (71%).
- ***Sporting and Recreational Camps (SIC 7032)*** is a small business industry with 3,018 workplaces and 15,238 employees; 92% worked in places with fewer than 100 employees; over half worked in places with fewer than 20 employees. The BLS did not report nonfatal occupational injury and illness data for this industry at the four-digit SIC-level in 1995. Likewise, a breakdown was not available of the 7 fatalities that occurred in SIC 703 among the 2 four-digit SIC subcategories.
- ***Recreational Vehicle Parks and Campsites (SIC 7033)*** is a small business industry that employed 16,173 persons in 3,611 workplaces in 1994. The BLS did not report nonfatal occupational injury and illness data for this industry at the four-digit SIC-level in 1995, and a breakdown was not available of the 7 fatalities that occurred in SIC 703 among the 2 four-digit SIC subcategories.
- ***Laundering, Cleaning, and Garment Services (SIC 721)*** is composed of 8 four-digit SIC industries; 5 are also small business industries. In 1994, the industry employed 433,926 workers in 56,536 establishments. SIC 721 experienced 26,400 occupational injury and illness cases in 1995, with an IR of 7.2 cases per 100 full-time workers. There were 13 fatal work injury cases in 1994; 39% were attributed to assaults and violent acts. Among the health concerns for workers in this industry are the potential health effects of exposures to and other solvents. The five subcategories of SIC 721, for which there are no individual data on injuries, illnesses, and fatalities in the BLS data at the four-digit SIC-level, are described below.
- ***Garment Pressing and Cleaners' Agents (SIC 7212)*** are establishments engaged in providing laundry and drycleaning services but which have the laundry and drycleaning work done by others. There were 3,159 such establishments with 12,159 employees in 1994; more than 98% worked in establishments with fewer than 100 workers; 82% worked at workplaces with

fewer than 20 workers; and 63% worked at sites with fewer than 10 employees.

- ***Coin-Operated Laundries and Drycleaning (SIC 7215)*** describes establishments that provide coin-operated or similar self-service laundry and drycleaning equipment for use on the premises or in apartments, dormitories, and similar locations. In 1994, there were 12,906 such establishments with 47,458 employees; 97% were in establishments with fewer than 100 workers, and 69% were at sites with fewer than 10 employees.
- ***Drycleaning Plants, Except Rug Cleaning (SIC 7216)*** is a small business industry with 22,024 establishments and 165,823 employees in 1994; 97% worked in places with fewer than 100 employees; and 67% worked in places with fewer than 20 employees.
- ***Carpet and Upholstery Cleaning (SIC 7217)*** is a small business industry consisting of 8,289 workplaces and 39,576 employees in 1994; 97% worked in places with fewer than 100 employees; and 45% worked in places with fewer than 10 employees.
- ***Laundry and Garment Services, NEC (SIC 7219)*** is a small business industry comprised of establishments engaged in furnishing laundry and garment services such as repair, alteration, and storage of apparel and providing diaper services. In 1994, there were 3,665 such establishments with 20,353 employees.
- ***Photographic Studios, Portrait (SIC 722)*** is a small business industry comprised of 1 four-digit SIC subcategory (SIC 7221) designated by the same name. This industry, which includes establishments engaged in still or video portrait photography for the general public, employed 74,990 persons in 12,436 establishments in 1994. There were 1,600 occupational injury and illness cases in this industry in 1995, with an IR of 2.9 cases per 100 full-time workers. No fatalities were reported for this industry in the 1994 CFOI.
- ***Beauty Shops (SIC 723)*** is a small business service industry comprised of 1 four-digit SIC subcategory (SIC 7231) designated by the same name. In 1994, there were 82,478 *Beauty Shops* with 388,925 employees; more than 99% worked in establishments with fewer than 100 persons; and 56% worked in shops with fewer than 10 employees. In 1995, this industry experienced 5,000 work injury and illness cases, with a relatively low IR among small business industries of 1.7 cases per 100 full-time workers. There were no fatalities recorded for this specific industry in the 1994 CFOI.
- ***Barber Shops (SIC 724)*** is a small business industry that contains 1 four-digit SIC subcategory (SIC 7241) designated by the same name. In 1994, there were 4,629 *Barber Shops* with 14,237 employees; more than 100% were employed in shops with fewer than 100 workers; and 71% were employed in

shops with fewer than 10 workers. There is no listing of nonfatal occupational injury and illness cases for *Barber Shops* in the BLS data for 1995; however, there were 5 fatal occupational injury cases in *Barber Shops* in 1994, all of which occurred as a result of assaults or violent acts.

- ***Shoe Repair Shops and Shoeshine Parlors (SIC 725)*** is a small business industry containing 1 four-digit SIC subcategory designated by the same name. In 1994, this industry included 2,438 workplaces and 6,109 employees; more than 96% worked in establishments with fewer than 100 workers; and 76% worked in shops with fewer than 10 employees. The BLS data does not list nonfatal injury and illness data for this industry in 1995. Likewise, there are no occupational fatalities reported for this specific industry in the 1994 CFOI. Occupational hazards historically associated with this industry include exposures to dyes and repetitive motion that can lead to musculoskeletal disorders.
- ***Funeral Services and Crematories (SIC 726)*** is a small business industry containing 1 four-digit SIC subcategory (SIC 7261) designated by the same name. In 1994, this industry was comprised of 15,912 establishments with 93,562 employees; 98% in workplaces with fewer than 100 workers and 80% in workplaces with fewer than 20 employees. This industry experienced 2,400 nonfatal injury and illness cases in 1995, with an IR of 3.2 cases per 100 full-time workers. No occupational fatalities were reported for this specific industry in the 1994 CFOI. Occupational hazards identified for this industry include exposure to formaldehyde and infectious agents [Seitz and Decker 1992] and musculoskeletal disorders and stress.
- ***Miscellaneous Personal Services, NEC (SIC 7299)*** is a small business industry engaged in providing personal services such as babysitting, blood pressure testing, costume rental, dating services, tanning salons, tattoo parlors, and other personal services NEC. In 1994, there were 17,296 such establishments with 97,224 employees. No data on occupational injuries, illnesses, and fatalities for this specific industry were reported at the four-digit SIC-level in the BLS surveys; however, in the broader category of *Miscellaneous Personal Services (SIC 729)* there was a work injury and illness IR of 1.7 cases per 100 full-time workers in 1995 and 6 fatal injury cases in 1994; 83% were due to assaults and violent acts.
- ***Outdoor Advertising Services (SIC 7312)*** is a small business industry specializing in the preparation of poster displays and painted and electric displays on billboards, panels, bulletins, and frames, principally outdoors. There were 1,251 such establishments with 12,589 employees in 1994. No data on occupational injuries, illnesses, and fatalities for this specific industry were reported at the four-digit SIC-level in the BLS surveys. Working on billboards and with other types of outdoor advertising is associated with increased risk for falls and electrocutions. NIOSH has investigated 5 fatal injuries associated with outdoor advertising [Bradee et al.

1995; Conroy et al. 1989; Manwaring et al. 1991; Pettit et al. 1985a, 1985b]. NIOSH also conducted a health hazard evaluation of billboard painters exposed to solvents [McManus 1984].

- ***Adjustment and Collection Services (SIC 7322)*** is a small business industry specializing in the collection or adjustment of claims, other than insurance. In 1994, this service industry employed 76,016 persons in 5,649 establishments. No data on occupational injuries, illnesses, and fatalities for this specific industry were reported at the four-digit SIC-level in the BLS surveys.
- ***Commercial Photography (SIC 7335)*** is a small business service industry engaged in providing commercial photography services for advertising agencies, publishers, and other business and industrial users. There were 3,964 such establishments with 16,321 employees in 1994; more than half worked in places with fewer than 20 employees. There are no data on occupational injuries, illnesses, and fatalities for this specific industry at the four-digit SIC-level in the BLS surveys.
- ***Commercial Art and Graphic Design (SIC 7336)*** is a small business industry consisting of 12,401 establishments with 53,026 employees in 1994; 96% worked in places with fewer than 100 employees. There are no data on occupational injuries, illnesses, and fatalities for this specific industry at the four-digit SIC-level in the BLS surveys.
- ***Secretarial and Court Reporting Services (SIC 7338)*** is a small business industry with 7,349 workplaces and 32,968 employees; 92% worked in places with fewer than 100 employees. No data on occupational injuries, illnesses, and fatalities were reported for this specific industry at the four-digit SIC-level in the BLS surveys.
- ***Disinfecting and Pest Control Services (SIC 7342)*** is a small business service industry consisting of 10,716 workplaces with 76,208 employees in 1994; 97% worked in places with fewer than 100 employees. No data on occupational injuries, illnesses, and fatalities for this specific industry were reported at the four-digit SIC-level in the BLS surveys.
- ***Miscellaneous Equipment Rental and Leasing (SIC 735)*** is composed of 3 four-digit SIC subcategories; all are also small business industries. In 1994, this industry employed 215,956 employees in 25,138 workplaces. Occupational injury and illness cases for the industry totaled 16,100 in 1995, with an IR of 7.9 cases per 100 full-time workers. SIC 735 recorded 14 fatal injury cases in 1994; 57% were due to transportation incidents. The four-digit SIC subcategories of this industry, for which there are no data on occupational injuries, illnesses, and fatalities at the four-digit SIC-level in the BLS surveys, are described below.

- ***Medical Equipment Rental and Leasing (SIC 7352)*** is a small business industry consisting of 3,292 workplaces and 33,313 employees.
- ***Heavy Construction Equipment Rental and Leasing (SIC 7353)*** is a small business industry specializing in the renting or leasing of equipment such as bulldozers, cranes, earth moving equipment, and other heavy construction equipment. In 1994, there were 3,661 such establishments with 37,253 employees.
- ***Equipment Rental and Leasing, NEC (SIC 7359)*** is a small business industry specializing in the rental or leasing of equipment NEC, such as airplanes, appliances, furniture, party supplies, vending machines, and electrical equipment. In 1994, this industry employed 143,828 persons in 17,564 establishments.
- ***Computer Rental and Leasing (SIC 7377)*** is a small business service industry that employed 7,780 persons in 812 establishments in 1994. There are no data on occupational injuries, illnesses, and fatalities for this specific industry at the four-digit SIC-level in the BLS surveys.
- ***Truck Rental and Leasing, No Drivers (SIC 7513)*** is a small business industry consisting of 4,577 workplaces and 37,421 employees in 1994; more than half worked in establishments with fewer than 20 workers. There were no data on occupational injuries, illnesses, and fatalities for this specific industry at the four-digit SIC-level in the BLS surveys.
- ***Utility trailer and recreational vehicle rental (SIC 7519)*** is a small business industry consisting of 479 workplaces and 1,989 employees; all worked in places with fewer than 100 employees; and more than two-thirds worked in places with fewer than 20 employees. There are no data on occupational injuries, illnesses, and fatalities for this specific industry at the four-digit SIC-level in the BLS surveys.
- ***Automobile Parking (SIC 752)*** is a small business service industry comprised of 1 four-digit SIC subcategory (SIC 7521) designated by the same name. In 1994, this industry consisted of 8,879 establishments with 58,475 employees. *Automobile Parking* recorded 2,900 nonfatal occupational injury and illness cases in 1995, with an IR of 5.7 cases per 100 full-time workers. No fatalities were recorded for this specific industry in the 1994 CFOI.
- ***Automotive Repair Shops (SIC 753)*** is comprised of 7 four-digit SIC subcategories describing automobile repair industries; all have been identified as small business industries (Table 3). In 1994, *Automotive Repair Shops* numbered 133,335 with 557,862 employees, 97% were in shops with fewer than 100 workers, 87% worked in shops with fewer than 20 workers, and 64% worked in the smallest shops with fewer than 10 employees. This industry experienced 35,400 nonfatal occupational injury and illness cases in 1995,

with an IR of 6.6 cases per 100 full-time workers. There were 61 fatal work injuries (including 28 self-employed workers) that occurred in *Automotive Repair Shops* in 1994; the causes were assaults and violent acts (34%), contact with objects and equipment (28%), fires and explosions (13%), exposure to harmful substances or environments (10%), and transportation incidents (10%). A breakdown of injury, illness, and fatality cases was not available in the BLS data among the following subcategories of *Automotive Repair Shops*.

- ***Top, Body, Upholstery Repair Shops, and Paint Shops (SIC 7532)*** is a small business industry with 35,030 shops and 177,811 employees in 1994; more than 98% worked in places with fewer than 100 employees, and more than half worked in shops with fewer than 10 employees.
- ***Automotive Exhaust System Repair Shops (SIC 7533)***, a small business industry, had 5,502 shops and 24,720 employees in 1994; all worked in shops with fewer than 100 employees and 82% in shops with fewer than 10 employees.
- ***Tire Retreading and Repair Shops (SIC 7534)*** is a small business industry consisting of 1,913 shops and 14,050 employees in 1994; 92% worked in places with fewer than 100 employees.
- ***Automotive Glass Replacement Shops (SIC 7536)*** is a small business industry comprised of 4,938 shops and 22,786 employees in 1994; all worked in places with fewer than 100 employees, and nearly two-thirds worked in places with fewer than 10 employees.
- ***Automotive Transmission Repair Shops (SIC 7537)*** is a small business industry with 6,391 shops and 25,578 employees in 1994; more than 99% worked in places with fewer than 100 employees, 93% worked in shops with fewer than 20 workers, and 77% worked in the smallest shops with fewer than 10 workers.
- ***General Automotive Repair Shops (SIC 7538)*** is a small business industry primarily engaged in the activities of gasoline and diesel truck engine repair, except industrial trucks. This industry included 68,419 shops and nearly 250,000 employees in 1994; 99% worked in places with fewer than 100 employees, 89% worked in shops with fewer than 20 employees, and 70% worked in places with fewer than 10 employees.
- ***Automotive Repair Shops, NEC (SIC 7539)*** is a small business industry engaged in specialized *Automotive Repair, NEC*, such as fuel service (carburetor repair), brake relining, front-end and wheel alignments, and radiator repair. In 1994, this industry had 9,931 shops and 41,687 employees; 99% worked in places with fewer than 100 employees, and 69% worked in places with fewer than 10 employees.

- ***Automotive Services, Except Repair*** (SIC 754) is a small business industry comprised of 2 four-digit SIC subcategories, both are small business industries also. In 1994, this industry included 24,299 establishments employing 184,328 persons; 96% were in workplaces with fewer than 100 workers. This industry group experienced 12,000 nonfatal occupational injury and illness cases in 1995, with an IR of 7.1 cases per 100 full-time workers. SIC 754 recorded 14 fatal occupational injury cases in 1994, nearly two-thirds (64%) were due to transportation incidents. A breakdown of injury, illness, and fatality cases was not available in the BLS data among the following four-digit SIC subcategories of SIC 754.
- ***Carwashes*** (SIC 7542) is a small business industry that includes establishments engaged in washing, waxing, polishing and/or detailing cars, buses, and trucks. In 1994, there were 12,197 such *Carwashes* with 106,719 employees; 95% worked in establishments with fewer than 100 employees.
- ***Automotive Services, Except Repair and Carwashes*** (SIC 7549) is a small business industry consisting of establishments providing automotive services such as emissions testing, diagnostic centers, lubricating service, towing, rustproofing, window-tinting, and do-it-yourself garages. In 1994, there were 11,704 such automotive service shops with 77,119 employees; 97% worked in places with fewer than 100 employees, and 79% worked in places with fewer than 20 employees.
- ***Radio and Television Repair Shops*** (SIC 7622) is a small business industry comprised of 5,611 shops and 28,384 employees in 1994; 94% worked in shops with fewer than 100 workers, and nearly two-thirds (64%) worked in shops with fewer than 20 employees. There are no data on injury, illness, and fatality cases for this specific industry in the BLS surveys; however, the broader category of *Electrical Repair Shops* (SIC 762) experienced an IR for nonfatal occupational injuries and illnesses of 6.1 cases per 100 full-time workers in 1995. SIC 762 also recorded 9 fatal occupational injury cases (including 4 self-employed workers) in 1994, two-thirds were due to exposure to harmful substances or environments.
- ***Refrigeration and Air-Conditioning Service and Repair Shops*** (SIC 7623), also a subcategory of SIC 762, is a small business industry that included 3,687 shops and 24,160 employees in 1994. More than half of these employees worked in shops with fewer than 20 workers. There are no data on injury, illness, and fatality cases for this specific industry in the BLS surveys. Electrocutation is a potential hazard associated with the *Electrical Repair Industries*. NIOSH has investigated a fatal injury of a refrigerator repair worker [Smith et al. 1992].
- ***Watch, Clock, and Jewelry Repair*** (SIC 763) is a small business industry containing 1 four-digit SIC subcategory (SIC 7631) designated by the same name. This industry consisted of 1,642 shops and 5,140 employees in 1994;

more than 95% worked in shops with fewer than 100 workers, and 72% were employed in shops with fewer than 10 employees. There are no data on injury, illness and fatality cases for this specific industry in the BLS surveys.

- ***Reupholstery and Furniture Repair (SIC 764)*** is a small business industry that contains 1 four-digit SIC subcategory (SIC 7641) designated by the same name. In 1994, this industry included 6,735 establishments with 21,796 employees; more than 97% were in shops with fewer than 100 workers, and 69% worked in shops with fewer than 10 workers. This industry experienced 1,000 nonfatal work injury and illness cases in 1995, with an IR of 5.3 cases per 100 full-time workers. There were no fatal injury cases reported for this specific industry in the 1994 CFOI.
- ***Miscellaneous Repair Shops and Related Services (SIC 769)*** is a small business industry comprised of 3 four-digit SIC industries; all are also small business industries. In 1994, this industry included 42,189 repair shops with 257,741 employees; 90% in shops with fewer than 100 employees, and 59% in shops with fewer than 20 employees. This industry reported 19,700 nonfatal occupational injury and illness cases in 1995, with an IR of 9.5 cases per 100 full-time workers. There were also 29 fatal injury cases (including 11 self-employed workers) that occurred in *Miscellaneous Repair Shops* in 1994; the causes being contact with objects and equipment (24%), fires and explosions (21%), assaults and violent acts (21%), and transportation incidents (21%). There was no breakdown of injury, illness, and fatality cases in the BLS data among the following four-digit SIC subcategories of SIC 769.
- ***Welding Repair (SIC 7692)*** is a small business industry that includes welding shops and establishments engaged in brazing and welding repair of cracked castings. In 1994, there were 5,714 such welding repair shops with 25,305 employees; more than 94% worked in shops with fewer than 100 workers, and more than half in shops with fewer than 10 employees. Burns and exposures to fumes generated during welding operations are among the occupational hazards associated with this industry.
- ***Armature Rewinding Shops (SIC 7694)*** is a small business industry involving rewinding armatures, coil winding, electric motor repair, hermetics repair, and rebuilding motors (not automotive). In 1994, this included 2,332 shops and 25,021 employees, more than 81% of whom worked in places with fewer than 100 employees.
- ***Repair Shops and Related Services, NEC (SIC 7699)*** is a small business industry comprised of establishments primarily engaged in specialized repair services such as bicycle repair, leather goods repair, lock and gun repair, musical instrument repair, septic tank cleaning, farm machinery repair, furnace cleaning, motorcycle repair, tank truck cleaning, taxidermists, tractor repair, and typewriter repair. In 1994, this industry of diverse repair shops and services included 34,136 establishments employing 207,396 employees; 89%

worked in shops with fewer than 100 workers, and 59% worked in shops with fewer than 20 employees.

- ***Services Allied to Motion Picture Distribution (SIC 7829)*** is a small business industry that includes establishments primarily engaged in performing auxiliary services to motion picture distribution, such as film delivery service, film purchasing and booking agencies, and film libraries. In 1994, this industry had 188 establishments with 1,099 employees; all worked in workplaces with fewer than 100 employees, and more than half worked in establishments with fewer than 20 workers. There are no data on occupational injuries, illnesses, and fatalities reported for this industry at the four-digit SIC-level in the BLS surveys; however, for the broader category of *Motion Picture Distribution and Allied Services (SIC 782)*, there was an IR for injuries and illnesses of 2.1 cases per 100 full-time workers in 1995.
- ***Motion Picture Theaters, Except Drive-ins (SIC 7832)*** is a small business industry engaged in the indoor exhibition of motion pictures. In 1994, this industry consisted of 6,155 theaters with 108,358 employees; more than 96% worked in theaters with fewer than 100 employees. There are no data on occupational injuries, illnesses, and fatalities reported for this industry at the four-digit SIC-level in the BLS surveys; however, for the broader category of *Motion Picture Theaters (SIC 783)*, there was an IR for occupational injuries and illnesses of 4.6 cases per 100 full-time workers in 1995.
- ***Drive-In Motion Picture Theaters (SIC 7833)***, the other subcategory of SIC 783, is a small business industry comprised of commercially-operated theaters engaged in the outdoor exhibition of motion pictures. This industry included 435 drive-in theaters with 3,195 employees in 1994, more than 80% of whom were employed in theaters with fewer than 100 employees. There are no data on occupational injuries, illnesses, and fatalities reported for this industry at the four-digit SIC-level in the BLS surveys.
- ***Video Tape Rental (SIC 784)*** is a small business industry primarily engaged in renting recorded video tapes and disks to the general public for personal or household use. In 1994, there were 21,562 video tape rental stores with 144,644 employees; 98% worked in stores with fewer than 100 workers, and more than two-thirds worked in shops with fewer than 20 employees. This industry recorded 1,100 nonfatal occupational injury and illness cases in 1995, with an IR of 1.3 per 100 full-time workers. There were also 7 fatal occupational injury cases in this industry in 1994, all related to assaults and violent acts.
- ***Dance Studios, Schools, and Halls (SIC 791)*** is a small business industry containing 1 four-digit SIC subcategory (SIC 7911) designated by the same name. In 1994, this industry consisted of 5,255 establishments employing 24,430 persons; 98% worked in studios or halls with fewer than 100 employees, 83% were in workplaces with fewer than 20 employees, and 57%

were in workplaces smaller than 10 employees. This industry recorded 100 nonfatal work injury and illness cases in 1995, with a relatively low IR among small business industries of 0.9 cases per 100 full-time workers. No fatal injury cases were recorded for this industry in the 1994 CFOI.

- ***Bowling Centers (SIC 793)*** is a small business industry containing 1 four-digit SIC subcategory (SIC 7933) designated by the same name. In 1994, there were 5,855 *Bowling Centers* (also referred to as lanes or alleys) employing 92,962 persons; more than 96% worked in centers with fewer than 100 employees. This industry recorded 2,000 nonfatal occupational injury and illness cases in 1995, with an IR of 3.8 cases per 100 full-time workers. There were no fatal injury cases recorded for this industry in the 1994 CFOI.

- ***Physical Fitness Facilities (SIC 7991)*** is a small business industry that includes establishments engaged in operating reducing and other health clubs, spas, and similar facilities featuring exercise and other active physical fitness conditioning, whether or not on a membership basis. In 1994, there were 9,813 such facilities with 154,692 employees; more than 82% were in establishments with fewer than 100 workers. There were no data on injuries, illnesses, and fatalities recorded for this industry in the BLS surveys.

- ***Public Golf Courses (SIC 7992)***, is a small business industry, that included 4,021 establishments with 47,993 employees in 1994; more than 89% worked at courses with fewer than 100 workers. There were no data on injuries, illnesses, and fatalities recorded for this industry in the BLS surveys.

- ***Coin-operated Amusement Devices (SIC 7993)*** is a small business industry that includes establishments engaged in operating coin-operated amusement devices, either in their own or in other places of business. In 1994, there were 4,722 establishments with 31,418 employees in SIC 7993; 90% were in establishments with fewer than 100 employees, and nearly two-thirds were in workplaces with fewer than 20 workers. There were no data on injuries, illnesses, and fatalities recorded for this industry in the BLS surveys.

- ***Offices and Clinics of Doctors of Medicine (SIC 801)*** is a small business industry that contains 1 four-digit SIC subcategory (SIC 8011) designated by the same name. This industry consists of establishments of licensed practitioners having the degree of M.D. and engaged in the practice of general or specialized medicine and surgery. In 1994, there were 198,538 such offices and clinics with 1,621,384 employees. Employees of these offices experienced 37,900 nonfatal work injury and illness cases in 1995, with an IR of 2.8 cases per 100 full-time workers. There were 11 fatal injury cases recorded for this industry in 1994, 55% as the result of assaults and violent acts and 36% due to transportation incidents.

- ***Offices and Clinics of Dentists (SIC 802)*** is a small business industry that contains 1 four-digit SIC subcategory (SIC 8021) designated by the same name. This industry is comprised of establishments of licensed practitioners having the degree of D.M.D. or D.D.S. (or D.D.Sc.) and engaged in the practice of general or specialized dentistry, including dental surgery. In 1994, there were 110,559 dental offices and clinics employing 594,259 persons; 99% worked in offices with fewer than 100 employees, 92% were in offices with fewer than 20 employees, and 66% were in the smallest offices with fewer than 10 workers. This industry experienced 10,100 nonfatal occupational injury and illness cases in 1995, with an IR of 2.4 cases per 100 full-time workers. There were 6 fatal occupational injury cases (including 4 self-employed persons) that occurred in dental offices and clinics in 1994. Five were attributed to assaults and violent acts. Occupational hazards for workers in this industry include exposures to nitrous oxide and mercury, as well as musculoskeletal disorders.
- ***Offices and Clinics of Doctors of Osteopathy (SIC 803)*** is a small business industry that contains 1 four-digit SIC subcategory (SIC 8031) designated by the same name. This industry includes establishments of licensed practitioners having the degree of D.O. and engaged in the practice of general or specialized osteopathic medicine and surgery. In 1994, there were 8,385 such offices with 48,908 employees; 99% worked in offices with fewer than 100 employees, and 83% worked in offices with fewer than 20 workers. There are no data on injury, illness, and fatality cases recorded for this industry in the BLS surveys.
- ***Offices of Other Health Practitioners (SIC 804)***, a small business industry, is comprised of 4 four-digit SIC subcategories that are also small business industries. Offices of other health practitioners numbered 79,002 in 1994 with 314,788 employees; 95% worked in offices with fewer than 100 employees, and 64% worked in offices with fewer than 10 workers. This industry experienced 6,000 nonfatal occupational injury and illness cases in 1995, with an IR of 1.9 cases per 100 full-time workers. There were no fatalities recorded for this industry in the 1994 CFOI. A breakdown of the work injuries and illnesses was not available among the following subcategories of SIC 804 in the BLS data.
- ***Offices and Clinics of Chiropractors (SIC 8041)*** is a small business industry that includes establishments of licensed practitioners having the degree of D.C. and engaged in the practice of chiropractic medicine. In 1994, there were 28,768 chiropractic offices employing 89,121 persons; more than 99% worked in offices with fewer than 100 employees, 96% worked in offices with fewer than 20 employees, and 83% worked in the smallest offices with fewer than 10 workers.
- ***Offices and Clinics of Optometrists (SIC 8042)*** is a small business industry comprised of establishments of licensed practitioners having the degree

of O.D. and engaged in the practice of optometry. In 1994, there were 17,080 such offices with 72,027 employees; 99% worked in offices with fewer than 100 workers, 93% worked in offices with fewer than 20 workers, and 73% worked in offices with fewer than 10 workers.

- ***Offices and Clinics of Podiatrists (SIC 8043)*** is a small business industry comprised of establishments of licensed practitioners having the degree of D.P. and engaged in the practice of podiatry. In 1994, there were 7,981 podiatry offices with 26,805 employees; all worked in offices with fewer than 100 employees, 97% were in offices with fewer than 20 employees, and 83% were in offices with fewer than 10 employees.
- ***Offices and Clinics of Health Practitioners, NEC (SIC 8049)***, a small business industry, includes establishments of the following health practitioners: acupuncturists, audiologists, Christian Science practitioners, dental hygienists, dietitians, hypnotists, midwives, nurses, occupational therapists, paramedics, clinical psychologists, speech pathologists, and other health practitioners NEC. In this industry of diverse health disciplines, there were 24,817 offices in 1994 with 126,300 employees; 88% were in offices with fewer than 100, and nearly two-thirds were in offices of fewer than 20 employees.
- ***Dental Laboratories (SIC 8072)*** is a small business industry with 7,417 workplaces and 39,309 employees in 1994; 96% worked in places with fewer than 100 employees, and 47% worked in places with fewer than 10 employees. There are no data on injuries, illnesses, and fatalities for this industry at the four-digit level in the BLS surveys; however, for the broader category of *Medical and Dental Laboratories (SIC 807)*, there was an IR for nonfatal occupational injuries and illness of 4.8 cases per 100 full-time workers in 1995. SIC 807 also recorded 4 fatal work injury cases in 1994, all due to transportation incidents.
- ***Schools and Educational Services, NEC (SIC 829)*** is a small business industry of establishments engaged in offering educational courses and services NEC, including: music, drama, language, and short-term examination preparatory schools, student exchange programs, and vocational counseling. In 1994, there were 14,927 such schools and services employing 119,070 persons; 84% worked in establishments with fewer than 100 employees. This industry recorded 2,800 nonfatal work-related injury and illness cases in 1995, with an IR of 3.1 cases per 100 full-time workers. There were 10 fatal occupational injury cases that occurred in this industry in 1994; 80% were due to transportation incidents.
- ***Child Day Care Services (SIC 835)***, a small business industry, contains 1 four-digit SIC subcategory (SIC 8351) designated by the same name. This industry is comprised of establishments engaged in the care of infants or children or in providing prekindergarten education where medical care or

delinquency correction is not a major element. In 1994, there were 51,191 child day care service establishments with 526,000 employees; 95% were in establishments with fewer than 100 employees, and more than half were in establishments with fewer than 20 workers. Workers in this industry experienced 14,800 nonfatal occupational injury and illness cases in 1995, with an IR of 3.8 cases per 100 full-time workers. There were 5 fatal occupational injury cases recorded for this industry in the 1994 CFOI, the leading cause being transportation incidents (60%).

- ***Labor Unions and Similar Labor Organizations (SIC 863)***, a small business industry, contains 1 four-digit SIC subcategory (SIC 8631) designated by the same name. This industry includes membership organizations of workers for the improvement of wages and working conditions. In 1994, these organizations totaled 19,264 and employed 171,996 persons, 82% of these in establishments with fewer than 100 workers, and more than half in workplaces with fewer than 20 workers. There were no data on injury, illness, and fatality cases for this industry reported in the BLS surveys; however, for the broader major group of *Membership Organizations* (SIC 86), there was an IR for nonfatal occupational injuries and illness of 3.9 cases per 100 full-time workers.
- ***Religious Organizations (SIC 866)***, a small business industry, contains 1 four-digit SIC subcategory (SIC8661) designated by the same name. This industry includes establishments of religious organizations operated for worship, religious training or study, government or administration of an organized religion, or for promotion of religious activities. In 1994, this industry was comprised of 146,527 establishments employing 1,265,938 persons; 82% of these in establishments with fewer than 100 workers, and nearly half in establishments smaller than 20 workers. Employees in this industry experienced 2,000 nonfatal occupational injury and illness cases in 1995, with an IR of 2.6 cases per 100 full-time workers. There were 27 fatal occupational injuries recorded that occurred among *Religious Organizations* in 1994, the leading causes being transportation incidents (56%) and assaults and violent acts (19%).
- ***Architectural Services (SIC 8712)*** is a small business industry comprised of establishments that provide architectural engineering services such as residential and commercial building design. In 1994, there were 18,295 establishments providing *Architectural Services* and employing 126,421 persons; 86% worked in establishments with fewer than 100 employees, 54% worked in establishments with fewer than 20 employees, and 35% worked in establishments with fewer than 10 workers. There are no data on injuries, illnesses, and fatalities for this industry at the four-digit SIC-level in the BLS surveys; however, for the broader category of *Engineering, Architectural, and Surveying Services* (SIC 871), there was an IR for nonfatal occupational injuries and illnesses of 2.1 cases per 100 full-time workers in 1995. SIC 871, which contains 3 four-digit subcategories, also experienced 35 fatal

work injury cases in 1994. The leading causes were transportation incidents (80%) and exposure to harmful substances or environments (11%).

- **Surveying Services (SIC 8713)** is a small business industry of establishments engaged in providing professional land, water, and aerial surveying services. In 1994, there were 8,870 establishments providing *Surveying Services* and employing 49,752 employees; more than 96% worked in establishments with fewer than 100 workers, 71% worked in establishments with fewer than 20 workers, and 47% worked in establishments with fewer than 10 employees. There are no data on injuries, illnesses, and fatalities for this industry at the four-digit SIC-level in the BLS surveys; however, there is information for the broader category of SIC 871, described above in *Architectural Services*.
- **Public Relations Services (SIC 8743)** is a small business industry of establishments engaged in the preparation of materials—written or spoken—designed to influence the general public or other groups in promoting the interests of their clients. In 1994, there were 5,404 such establishments with 30,305 employees; more than 82% worked in places with fewer than 100 workers, and more than 86% worked in places with fewer than 20 employees. There are no data on injuries, illnesses, and fatalities for this industry at the four-digit SIC-level in the BLS surveys; however, for the broader category of *Management and Public Relations Services (SIC 874)*, there was an IR for nonfatal occupational injuries and illness of 3.0 cases per 100 full-time workers. In SIC 874, which contains 5 four-digit SIC subcategories including SIC 8743, there were also 18 fatal work injury cases in 1994; 80% were due to transportation incidents.
- **Services, NEC (SIC 899)**, a small business industry, contains 1 three-digit SIC subcategory (SIC 899) and 1 four-digit SIC subcategory (SIC 8999), both of which are also designated by the same name. This industry includes the following services, NEC: authors, lecturers, radio commentators, song writers, weather forecasters, writers, and artists working on their own account. In 1994, this industry of diverse services included 14,632 establishments employing 85,030 persons; more than 82% worked in establishments with fewer than 100 employees, and more than 46% worked in establishments with fewer than 20 workers. There were 900 nonfatal occupational injury and illness cases reported for this industry in 1995, with an IR of 2.4 cases per 100 full-time workers. Among the *Services, NEC*, there were 7 fatal occupational injury cases recorded in the 1994 CFOI, 71% were due to transportation incidents.