THE STATE OF SMALL BUSINESS:



A REPORT OF THE PRESIDENT

1994

Together with the Annual Report on Small Business and Competition and the Annual Report on Federal Procurement Preference Goals of the U.S. Small Business Administration

United States Government Printing Office
Washington: 1995

Contents

THE STATE OF SMALL BUSINESS: A REPORT OF THE PRESIDENT		1
THE ANNUAL REPORT ON SMALL BUSINESS AND COMPETITION*		9
Executive Summary		13
Chapter 1	The State of Small Business	27
Chapter 2	Health Insurance Coverage: A Profile of the Uninsured by Firm Size and Employment Status	65
Chapter 3	Innovation by Small Firms	109
Chapter 4	Defense Diversification and Small Business	133
Appendix A	Supplementary Tables	157
Appendix B	Small Business Financing	311
Appendix C	Procurement	351
THE ANNUAL REPORT ON FEDERAL PROCUREMENT PREFERENCE GOALS*		381
GLOSSARY		439
INDEX		443

*For detailed tables of contents of *The Annual Report on Small Business and Competition* and *The Annual Report on Federal Procurement Preference Goals*, see pages 21 and 385.

THE STATE OF SMALL BUSINESS

A REPORT OF THE PRESIDENT

The State of Small Business:
A Report of the President

To the Congress of the United States:

I am pleased to forward my second annual report on the state of small business, and to report that small businesses are doing exceptionally well. Business starts and incorporations were up in 1993, the year covered in this report. Failures and bankruptcies were down. Six times as many jobs were created as in the previous year, primarily in industries historically dominated by small businesses.

Small businesses are a critical part of our economy. They employ almost 60 percent of the work force, contribute 54 percent of sales, account for roughly 40 percent of gross domestic product, and are responsible for 50 percent of private sector output. More than 600,000 new firms have been created annually over the past decade, and over much of this period, small firms generated many of the Nation's new jobs. As this report documents, entrepreneurial small businesses are also strong innovators, producing twice as many significant innovations as their larger counterparts.

In short, a great deal of our Nation's economic activity comes from the record number of entrepreneurs living the American Dream. Our job in Government is to make sure that conditions are right for that dynamic activity to continue and to grow.

And we are taking important steps. Maintaining a strong economy while continuing to lower the Federal budget deficit may be the most important step we in Government can take. A lower deficit means that more savings can go into new plant and equipment and that interest rates will be lower. It means that more small businesses can get the financing they need to get started.

We are finally bringing the Federal deficit under control. In 1992 the deficit was $290 billion. By 1994, the deficit was $203 billion; we project that it will fall to $193 billion in 1995.

Deficit reduction matters. We have been enjoying the lowest combined rate of unemployment and inflation in 25 years. Gross domestic product has increased, as have housing starts. New business incorporations continue to climb. We want to continue bringing the deficit down in a way that protects our economic recovery, pays attention to the needs of people, and empowers small business men and women.

Capital Formation

One area on which we have focused attention is increasing the availability of capital to new and small enterprises, especially the dynamic firms that keep us competitive and contribute so much to economic growth.

Bank regulatory policies are being revised to encourage lending to small firms. Included in the Credit Availability Program that we introduced in 1993

we're making progress in our efforts to create a smaller, smarter, less costly and more effective Government that is closer to home—closer to the small businesses and citizens it serves.

In the first round of our reinventing Government initiative—the National Performance Review—we asked Government professionals for their best ideas on how to create a better Government with less red tape. One recommendation was that Federal agency compliance with the Regulatory Flexibility Act—which requires agencies to examine proposed and existing regulations for their effects on small entities—be subject to judicial review. In other words, they said we need to put teeth in the legislation requiring Federal agencies to pay attention to small business concerns when they write regulations. That proposal has been under debate in the Congress.

Federal agencies are already considering and implementing specific ways to streamline regulations and make paperwork easier for small businesses to manage. For example, the Environmental Protection Agency (EPA) responded to small business owners and advocates who said that the agency's toxic release inventory rule was especially costly and burdensome. In November 1994, the EPA announced a final rule that will make it easier for small businesses to report small amounts of toxic releases.

And the SBA has slashed the small business loan form for loans under $100,000 from an inch-thick stack to a single page. The SBA is also piloting a new electronic loan application that will involve no paperwork, but will allow business owners to concentrate on the business at hand—building a successful operation.

When businesses are unable to succeed, no one is served by a process that entangles small business owners in an endless jumble of paperwork. Sweeping changes made to bankruptcy laws in the past year will help small businesses reorganize. Small firms with less than $2.5 million in debt may utilize a streamlined reorganization process that is less expensive and more timely.

My Executive Order on Regulatory Review provides a process for more rational regulation, and we've been listening to the concerns of small firms through a Regulatory Reform Forum for Small Business. Five sector-specific groups have made specific proposals for regulatory relief. These groups have said that a comprehensive, multiagency strategy, with better public involvement, is probably the most cost-effective way to improve both the quality of regulations and compliance with them. The key is to make sure that Government serves small business and the American people, not the other way around.

Electronic Commerce and Government Procurement

The reinventing Government initiative also called for expanded use of electronic marketing and commerce, and we have made great strides in providing information about Government programs electronically. These methods will increase small business access to markets.

Another area that has been sorely in need of reform is the Government procurement process. In October 1994, I signed into law the Federal Acquisition

North American Free Trade Agreement and the General Agreement on Tariffs and Trade will benefit small firms interested in expanding into international markets in this hemisphere and beyond.

Lending to small exporters is being eased through reforms in the Export-Import Bank's Working Capital Guarantee Program. New one-stop export shops are moving in the right direction to assist small firms by providing access to export programs of the Department of Commerce, the Export-Import Bank, and the Small Business Administration all under one roof.

Hearing from Small Business

Small businesses are too important to our economy for their concerns not to be heard. That is why I have given the Small Business Administration a seat on the National Economic Council and invited the SBA Administrator in to Cabinet meetings.

Over the past 2 years, my Administration has been asking questions of small business owners and listening to the answers—seeking advice and guidance from a diverse audience of business leaders to determine the most critical problems and devise solutions that work.

This year presents a special opportunity for small business persons to make their concerns known at the White House Conference on Small Business, set to convene in Washington in June 1995. In State conferences leading up to the national conference, small business owners have been frank about their concerns. I look forward to hearing their small business action agenda.

I firmly believe that we need to keep looking to our citizens and small businesses for innovative solutions. They have shown they have the ingenuity and creative power to make our economy grow; we just need to let them do it.

William J. Clinton

THE WHITE HOUSE

THE ANNUAL REPORT ON SMALL BUSINESS AND COMPETITION

THE U.S. SMALL BUSINESS ADMINISTRATION

Letter of Transmittal

Mr. President:

The United States Small Business Administration herewith submits its 1994 Report on Small Business and Competition in accordance with the Small Business Economic Policy Act of 1980. The report was prepared by the Office of Advocacy of the U.S. Small Business Administration.

We are pleased to present this report and to work with you on behalf of this important sector of the economy.

Sincerely,

PHILIP LADER
Administrator

JERE W. GLOVER
Chief Counsel for Advocacy

Executive Summary

Nineteen-ninety-three, the second year of recovery from the recession, was a good year for the economy and a very good year for small business. Six times as many jobs were created as in the previous year, primarily in industries traditionally dominated by small firms. Most of the job losses occurred in industries dominated by large businesses. The greatest employment gains were in services and retail trade industries; the greatest job losses were in manufacturing, especially in industries such as aircraft, guided missiles, and navigation systems affected by cutbacks in defense spending.

Growth in the Number of Businesses

The number of businesses, as reflected in the number of business tax returns filed in 1993, reached a new high—an estimated 21.5 million. The compound rate of growth in these businesses over the 1981–1993 period was 3.9 percent per year. There were 5.8 million businesses with employees in 1993.

New incorporations continued to increase to a record 706,540 in 1993, while both business failures and bankruptcies declined by more than 11 percent. Startups and terminations, as recorded in state unemployment insurance data, both increased, primarily in the southern and mountain states. The largest number of new incorporations was in the Midwest.

Prices, Interest Rates, Profits

Consumer purchases and housing starts also increased in 1993, as prices stabilized and short-term interest rates remained at their lowest levels in 30 years. Businesses took advantage of the improved economy to invest more in plant and equipment. These moves formed the basis for further expansions in the production of goods and services.

The recovery in corporate profits observed in 1992 was even stronger in 1993, with a 14.3-percent gain over the previous year. Employment compensation increased by 5.3 percent and proprietorship earnings increased by an estimated 7.2 percent in 1993.

The year ended with an impressive 7.5-percent annual rate of real growth in gross domestic product for the final quarter.

Financing

Owners of different types of small businesses use different financing sources. For analysis purposes, three types of small businesses are distinguished: very small firms, dynamic ventures, and traditional small businesses.

Generally the owners of the firms defined as "very small firms" in this context seek employment independence and have limited aspirations for ac-

Among the fastest growing small-business-dominated industries in 1993 were a number of health care, social services, and construction-related industries. Many of the largest job losers were in large-business-dominated industries related to defense, such as aircraft, navigation systems, and guided missiles.

A comparison of average wages in the industries gaining and losing the most jobs indicates that—excluding the eating and drinking places sector, which offers entry-level jobs unlikely to attract mature wage earners released from large-business-dominated industries—a job in a declining industry could be traded for a job in a growing industry with little overall effect on wages.

The Changing Structure of Industry

Small businesses are playing an important role in the restructuring of U.S. industry. Sectors historically dominated by large firms, such as manufacturing, are declining in their share of overall employment while those that have been the province of smaller firms, like services, are expanding.

Some industries are producing more with fewer people, an indication of increased worker productivity. For example, manufacturing employment has fallen from more than 33 percent of the work force in 1950 to just over 16 percent in 1993, but the industry's output has doubled over the past 25 years. The small business share of manufacturing employment is increasing, not only because some large firms are getting smaller or spinning off smaller enterprises, but also because new small firms are entering the manufacturing sector and very small firms are growing larger.

Service industry employment—in some ways a mirror image of manufacturing employment—has risen from less than 12 percent of nonfarm civilian employment in 1950 to more than 27 percent in 1993. The average size of firms in this industry traditionally dominated by small firms is growing larger, to the extent that the sector overall is no longer clearly small-business-dominated. As in manufacturing over the past century and in retailing over the past decade, scale economies are accruing to the service sector as the lines of business and methods of operation—often first developed in small firms—are streamlined, standardized, and programmed.

Innovation in Small and Large Firms

Overall, technological changes—innovations and their diffusion—are credited with about 30 percent of the increase in gross domestic product in the 45-year period from 1947 to 1992.

Small firms have been estimated by the Futures Group to be responsible for 55 percent of manufacturing product innovations and they produce more than twice as many innovations per employee as large firms. They also produce twice as many significant innovations per employee.

Innovations may be classified into four categories: product, service, process, and management innovations. Among small firm innovations, service innovations are the most numerous (38 percent) followed by product innova-

was awarded directly to small firms and at least $22.3 billion (11.2 percent) was awarded to small businesses as subcontractors.

Small business awards in contracts over $25,000 were at their highest level ever as a percentage of all such awards and their third highest dollar level since 1980.

Despite a continuing decline, the Department of Defense remains the largest single source of contract awards from the federal government overall and for small business in particular, accounting for nearly 63 percent of small business award dollars. Since 1980, when half of all awards to small firms were for supplies and equipment, the share of awards for supplies and equipment and for construction have declined, while opportunities for providing services and research and development have increased.

Procurement data for the past 10 years indicate that women- and minority-owned businesses have been more successful in obtaining awards during a period when overall federal expenditures and federal procurement award dollars were being reduced. While total federal and small business award dollars decreased each year from FY 1986 to FY 1989 and again in FY 1992, the value of awards has increased each year since 1982 for women-owned firms and since 1986 for minority-owned firms.

Women-Owned Businesses

More than 5.5 million sole proprietorships in the United States were owned by women in 1991, the latest year for which these data are available. The number has almost doubled since 1981 and reflects a compound annual rate of increase of 7.2 percent over the previous 10 years—nearly double that of businesses owned by men (3.8 percent). From 1990 to 1991 alone, the number of women-owned businesses increased by 200,000, a gain of nearly 4 percent. Women-owned sole proprietorships now constitute 32.7 percent of the total, up from 26.4 percent in 1981.

Women's business ownership is greatest in wholesale and retail trade, where they own nearly 40 percent of all proprietorships. The greatest gains in 1991 were made in the transportation and utility sector.

Women-owned sole proprietorship businesses averaged just over $19,000 in receipts per year, just 35 percent of receipts of their male counterparts. The lower receipts level is related, among other factors, to women's concentration in the trade and service industries and the newness of their businesses.

Defense Diversification and Small Business

In 1993, defense spending accounted for 6.5 percent of U.S. gross domestic product; by 1997 it is expected to drop to about 3.2 percent. Total defense-related jobs, which peaked at 7.2 million in 1987, are expected to drop to 4.5 million.

Nationally, about one-half of total unemployment attributable to defense cuts will represent small business job losses. Some losses will be in direct de-

The facts about uninsurance are important to the small business community because almost two-thirds of the uninsured—22.4 million people—are working, and two-thirds of the working uninsured are either employed in small firms with fewer than 500 workers (12.2 million) or self-employed (2.6 million).

The lack of insurance is most widespread among the self-employed (21.2 percent). Differences in coverage between the incorporated and unincorporated self-employed are related in part to differences in the tax deductibility of health insurance among legal forms of business.

Industries least likely to offer insurance are characterized by low and variable profits, high turnover, and a disproportionate number of part-time, seasonal, or young workers. Most companies without coverage are in the retail trade and construction industries; some service industries also have low rates of coverage.

Workers may not be eligible for health care coverage in their companies; of those who are, approximately 14 percent turn down coverage in small firms, compared with 7 percent in larger firms. Workers most likely to be uninsured are young, unmarried, minority, less educated, low-wage, part-time workers—especially in the retail, construction, or service industries—who have worked for their employers less than one year.

Workers in small firms with fewer than 500 workers are less likely than those in larger firms to be covered by their employer (in small firms, 43.4 percent; in large, 65.9 percent) but more likely to obtain coverage from other sources, such as a family member's employer (17.5 percent in small firms, 13.5 percent in large) or nonemployer sources (15.9 percent in small firms, 9.8 percent in large). For firms with fewer than 25 employees, the direct rate of employer coverage is only 28.2 percent, but family and other sources cover an additional 42.4 percent.

Table of Contents

Chapter 1	**The State of Small Business**	**27**
	The Economic Environment for Small Business	**28**
	The Number of Small Businesses	**34**
	Business Formation and Dissolution	**36**
	Business Incorporations	**37**
	Business Bankruptcies and Failures	**41**
	Business Earnings	**42**
	The Changing Structure of Industry	**43**
	Small- and Large-Business-Dominated Industries	**46**
	Employment in Small- and Large-Business-Dominated Industries	**48**
	Employment Changes and Firm Size	**53**
	Employment Changes and Relative Earnings	**57**
	Women-Owned Businesses	**57**
Chapter 2	**Health Insurance Coverage: A Profile of the Uninsured by Firm Size and Employment Status**	**65**
	Public Policy and the Health Care Marketplace	**66**
	Health Insurance and Small Business	**67**
	The Uninsured	**67**
	Why Firms Do Not Offer Health Insurance	**68**
	Worker Eligibility and Participation in a Plan	**69**
	Data Sources for Measuring the Uninsured	**70**
	Who are the Uninsured?	**70**
	Total Uninsured in the Nation	**70**
	The Working Population With and Without Insurance	**71**
	The Nonworking Population Without Health Insurance	**79**
	Characteristics of the Insured and Uninsured	**80**
	Wage-and-Salary Workers	**80**
	The Self-Employed	**96**
	Appendix	**99**

	Public and Private Sector Responses to Defense Diversification Needs	147
	The Federal Government	147
	Defense Diversification: A State Approach	150
	Defense Diversification: A Regional Approach	152
	Defense Diversification at the Local Level: Two Success Stories	153
	A Private Sector Initiative: CALSTART	155
Appendix A	**Supplementary Tables**	157
Appendix B	**Small Business Financing**	311
	Sources and Uses of Funds by U.S. Business	312
	Borrowing by Small Businesses	312
	Sources of Financing Used by Small Businesses	313
	Bank Loans to Small Business	314
	Federal Policy Changes and Their Impacts on Bank Lending	318
	Business Loans by the U.S. Small Business Administration	322
	Finance Companies	323
	Borrowing in the Public Issue Markets	323
	Appendix B Tables	329
Appendix C	**Procurement**	351
	Size of Federal Contract Actions	353
	Small Business Procurement Trends	354
	Contract Awards by Major Recipient Category	354
	Major Procurement Centers	353
	Sources of Small Business Awards by Agency/ Department	353
	Small Business Share of Purchasing Agency Awards	358
	Product/Service Categories	358
	Supplies and Equipment	358
	Services	358
	Construction	360
	Research and Development	360

Acknowledgments

The Annual Report on Small Business and Competition was prepared by the U.S. Small Business Administration under the leadership of Administrator Philip Lader and Chief Counsel for Advocacy Jere W. Glover. Bruce D. Phillips directed the Office of Economic Research. Robert E. Berney, professor and chair of economics at Washington State University, served as chief economic advisor. Susan M. Walthall directed the Office of Information.

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The Office of Advocacy appreciates the interest of all who reviewed the report, including staff of the Council of Economic Advisers, the Office of Management and Budget, and the National Economic Council. Thanks are also extended to the U.S. Government Printing Office for their assistance.

Chapter 1

The State of Small Business

Synopsis

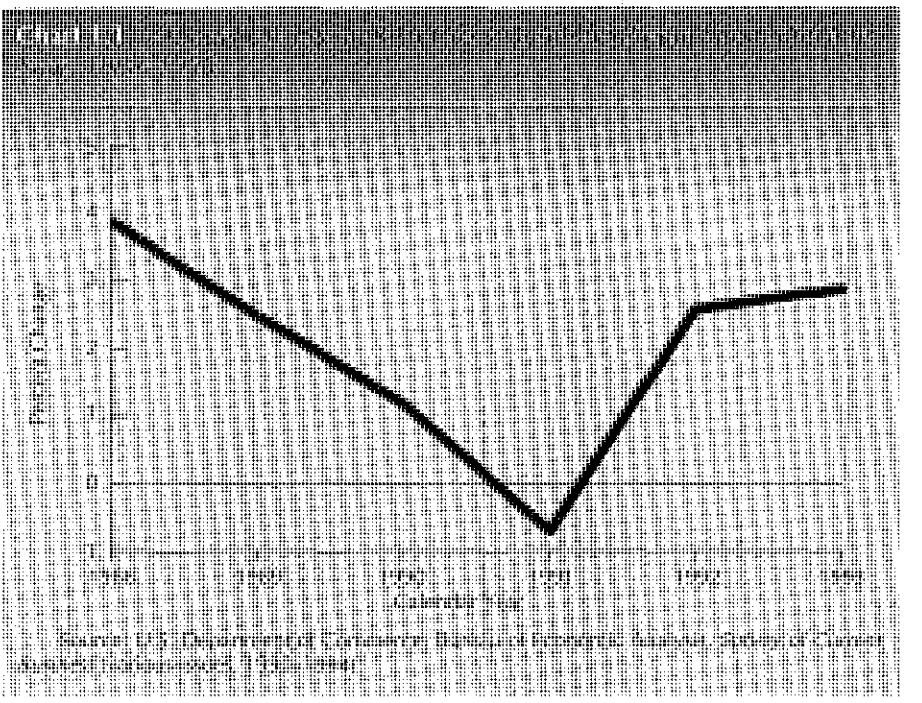
Calendar 1993 was the second year of recovery from the recession, a good year for the economy, and a very good year for small business. Real gross domestic product (GDP) increased at an annual rate of 3 percent for the year 1993 following 2.6-percent growth in 1992. Nearly 1.7 million jobs—six times as many jobs as in 1992—were created during the year 1993. Employment growth was concentrated in trade and services, industries traditionally dominated by small businesses. Employment in mining and manufacturing, traditionally dominated by large businesses, continued to decline. The contributions to employment growth by small businesses occur because small businesses are most frequent in those industries that are growing most rapidly.

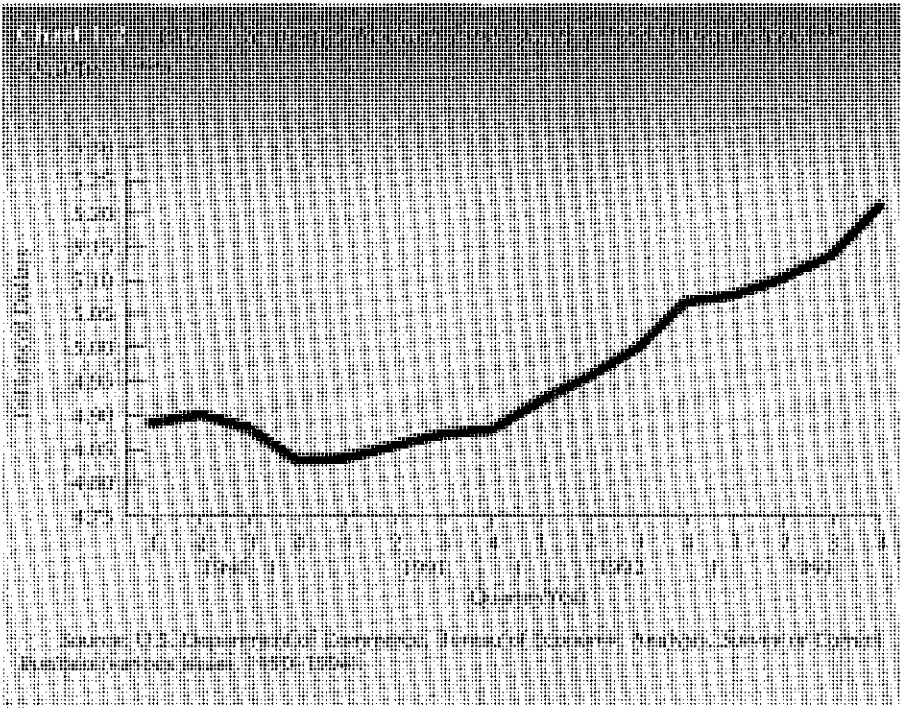
Small-business-dominated industries added over a million jobs during the year while large-business-dominated industries reduced employment by over 200,000. In spite of their smaller size, the 15 largest job contributors among small-business-dominated industries contributed almost four times as many new jobs as the 15 largest job contributors among large-business-dominated industries. The greatest employment gains were in trade and services, which added over 1.5 million jobs. Manufacturing lost nearly 200,000 jobs, of which at least half was the result of reductions in defense procurement. The overall gain in payroll employment was nearly 2 percent for calendar 1993.

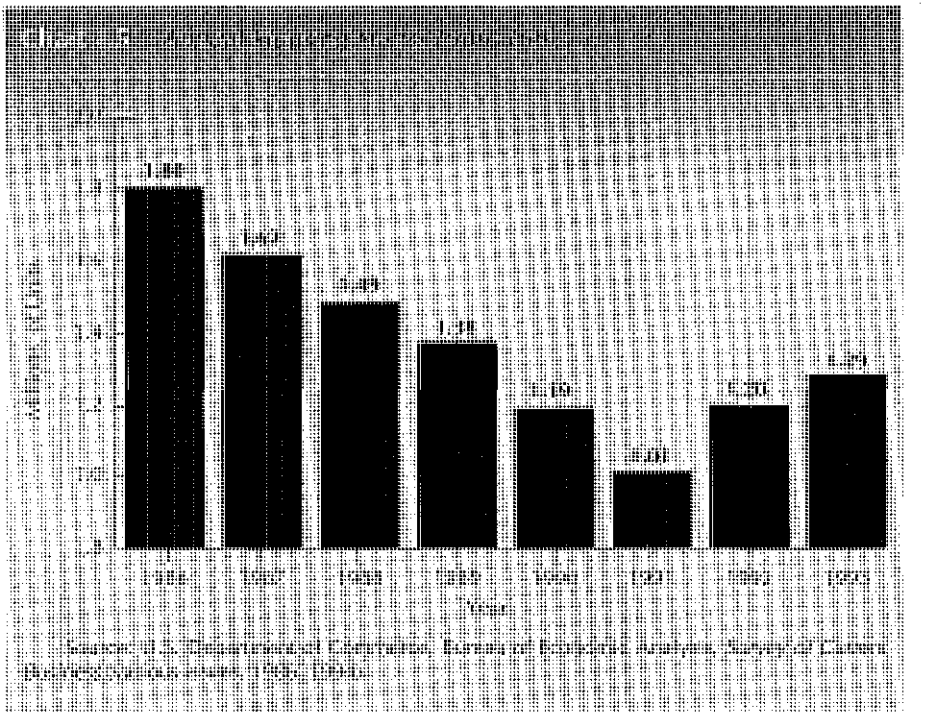
The recovery in the rate of new business formation and incorporation observed in 1992 continued into 1993 and the rate of both bankruptcies and failures declined by 11.5 and 11.4 percent respectively.

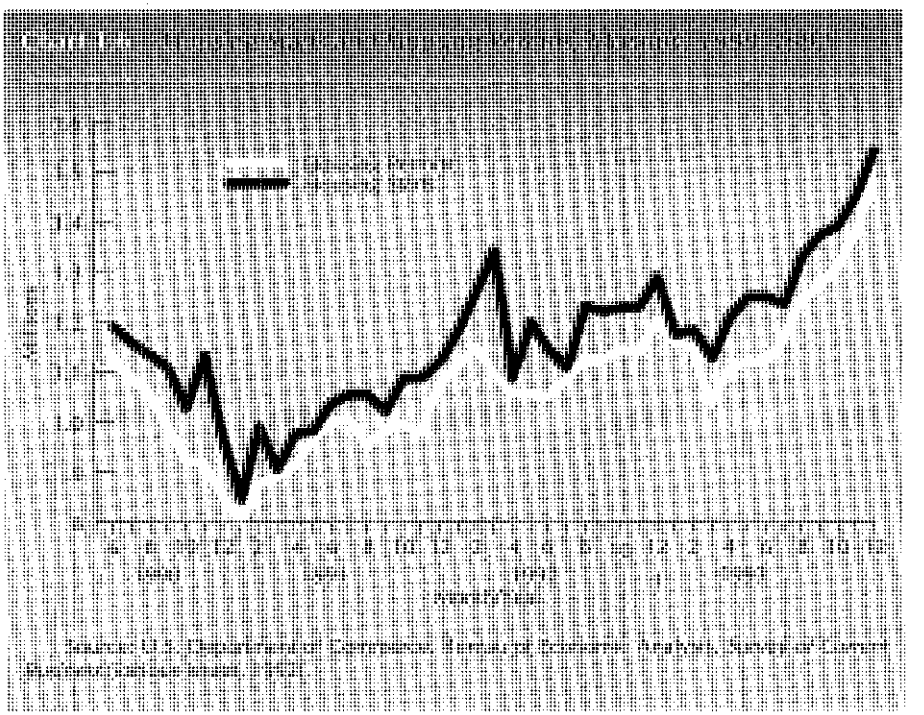
Prices were more stable in 1993, as measured by both the Consumer Price Index (CPI) and the Producer Price Index (PPI). This price stability kept short-term interest rates at their lowest levels in 30 years. The result was an increase in consumer purchases of durables, of business investment in plant and equipment, and a 30-percent increase in the seasonally adjusted rate of housing starts over the course of the year. Recent upward adjustments in mortgage interest rates and in the short-term interest rates by the Federal Reserve Board should moderate this rate of growth while helping to insure continued price stability.

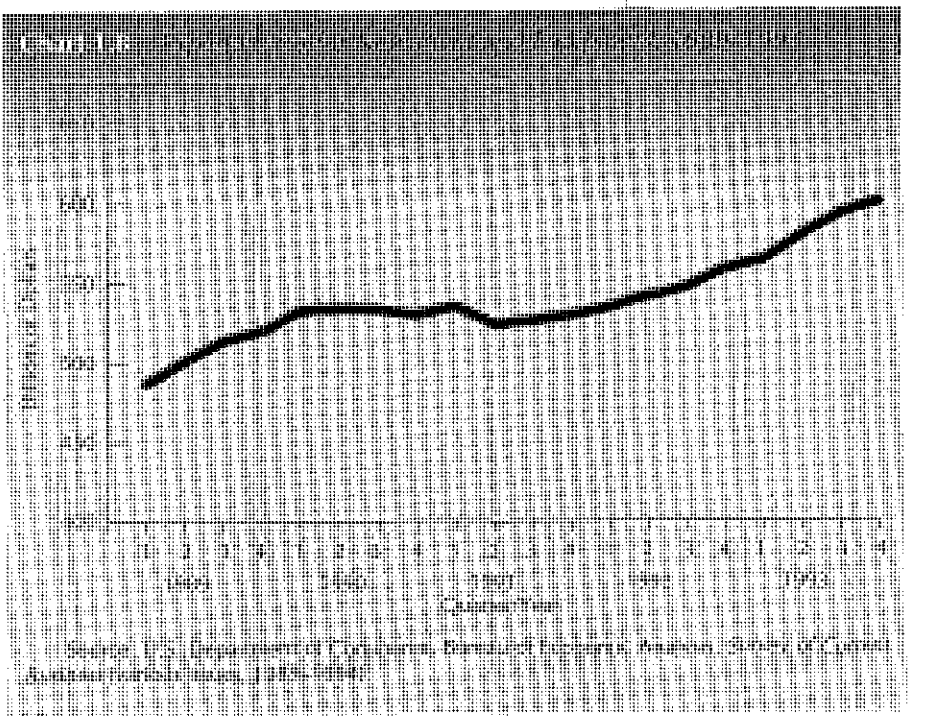
The year ended with an impressive 7.5-percent annual rate of real growth in GDP for the final quarter.

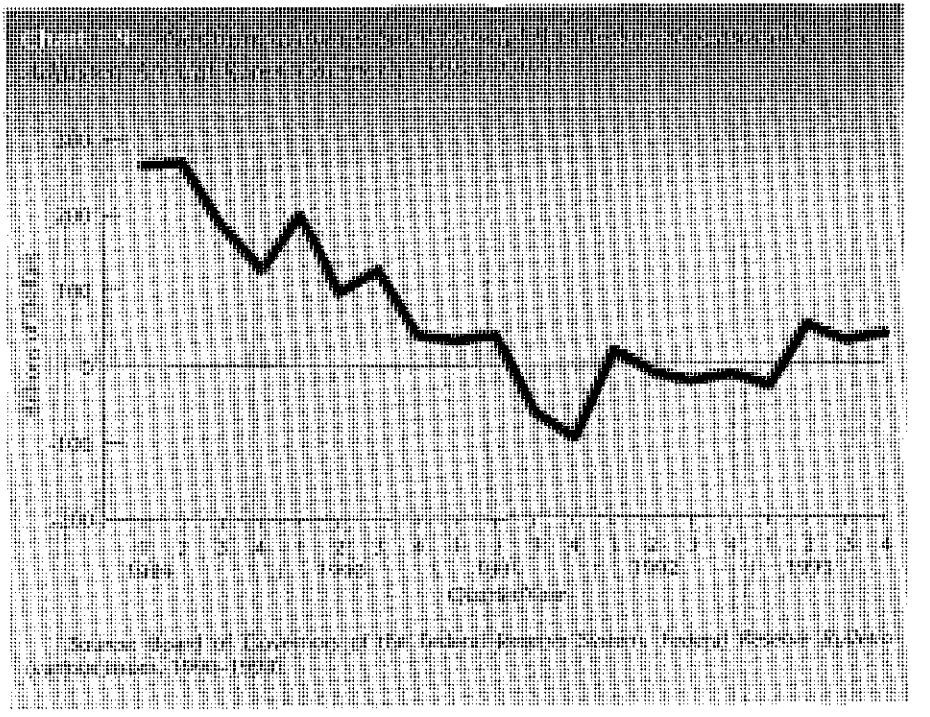


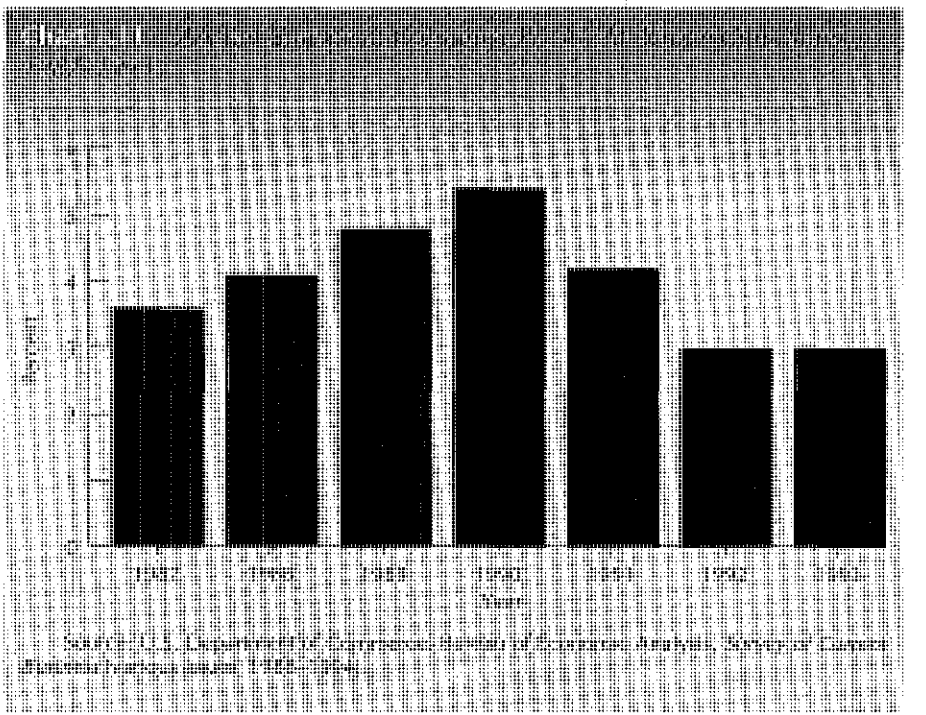












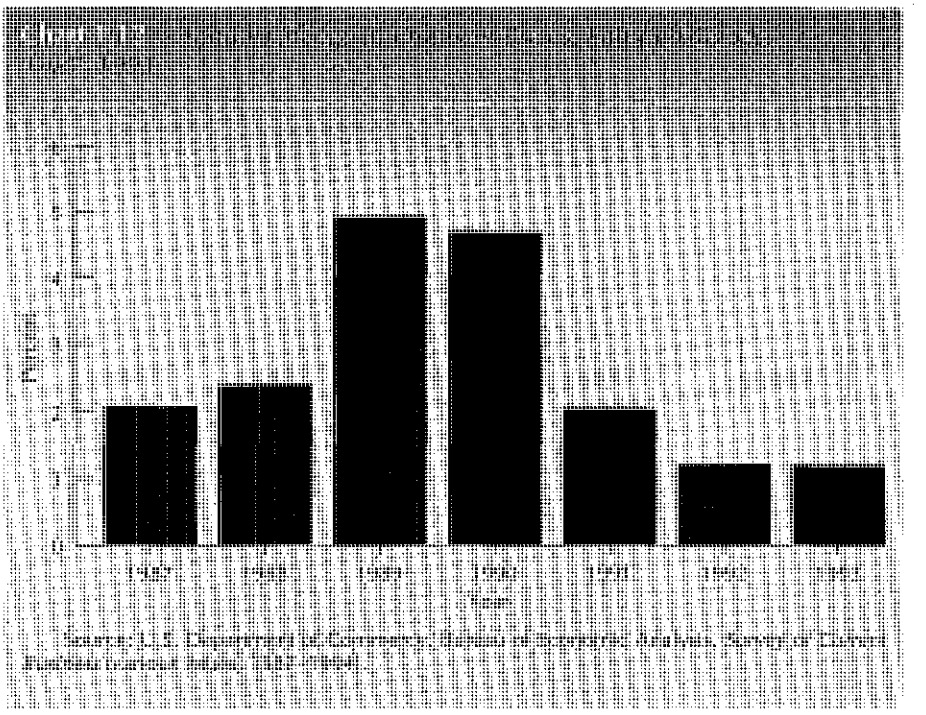


Table 1.1 *Nonfarm Business Tax Returns, 1981–1993 (Thousands)*

Year	Corporations (Forms 1120 and 1120S)	Partnerships (Form 1065)	Proprietorships (Schedule C)	Total	Annual Percentage Increase
1993*p*	4,605	1,571	15,323	21,499	1.27
1992	4,518	1,609	15,066	21,230	2.79
1991	4,374	1,652	14,626	20,653	1.05
1990	4,320	1,751	14,149	20,439	4.78
1989	4,197	1,780	13,529	19,506	2.78
1988	4,027	1,826	13,126	18,979	3.79
1987	3,829	1,824	12,633	18,286	4.50
1986	3,577	1,807	12,115	17,499	3.18
1985	3,437	1,755	11,767	16,959	4.88
1984	3,167	1,676	11,327	16,170	6.40
1983	3,078	1,613	10,507	15,198	5.96
1982	2,913	1,553	9,877	14,343	5.38
1981	2,813	1,458	9,345	13,616	—
Average Annual Growth Rate (Percent)	4.2	0.6	4.2	3.9	

p = Projected
Source: U. S. Department of the Treasury, Internal Revenue Service, *Statistics of Income Bulletin* (Winter 1993–1994), Table 20.

nearly 22 percent, and accompanied by the second largest increase in firm dissolution, 16 percent. Increases in business formation are almost always accompanied by increases in firm dissolution. As more firms start, it is inevitable that some of them will not be permanent businesses. Regions IV (the Southeast), VI (the Southwest), and VIII (the Mountain States) also showed above-average growth in the number of businesses and, of course, above-average increases in business terminations.

Region IX (the far Southwest) shows the effects of cutbacks in aerospace and defense. This was the only region with a decline in the number of firms, where the number of new and successor firms was less than the number of discontinuances. The differences in entry and exit of firms among the regions are examples of the accommodation of the economy to changes in market demands.

Business Incorporations

Corporations represent more than 60 percent of businesses with employees and account for nearly 90 percent of the nation's sales and employment. The increased rate of new business incorporations observed in 1992 continued into 1993, surpassing 700,000 for the first time since 1986 (Table 1.4). These two years of increase followed a period of five straight declines in incorporations over

Table 1.3 *Change in the Number of U.S. Businesses with Employees by Major Region, Calendar Years 1992–1993*

			New and Successor Firms		Terminations	
	Firms at End of FY 1993	Change from FY 1992 (Percent)	Number in FY 1993	Change from FY 1992 (Percent)	Number in FY 1993	Change from FY 1992 (Percent)
Total, United States	**5,847,979**	**1.97**	**915,783**	**16.7**	**805,229**	**14.8**
Region I	357,578	0.34	45,832	12.9	44,605	12.5
Region II	633,818	1.13	87,409	13.9	83,103	13.2
Region III	566,430	1.37	80,903	14.5	73,262	13.1
Region IV	994,497	2.78	181,752	18.8	154,856	16.0
Region V	993,856	2.43	124,049	12.8	100,488	11.9
Region VI	582,656	2.80	100,142	17.7	84,253	14.9
Region VII	293,785	0.76	43,610	15.2	37,604	13.1
Region VIII	216,045	3.96	39,696	17.9	31,468	15.1
Region IX	912,074	−0.22	149,216	16.3	151,234	16.5
Region X	285,657	5.93	59,122	21.9	43,128	16.0

Note: SBA regions are defined as follows: Region I: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont; Region II: New Jersey, New York; Region III: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia; Region IV: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee; Region V: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; Region VI: Arkansas, Louisiana, New Mexico, Oklahoma, Texas; Region VII: Iowa, Kansas, Missouri, Nebraska; Region VIII: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming; Region IX: Arizona, California, Hawaii, Nevada; and Region X: Alaska, Idaho, Oregon, Washington.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data provided by the U.S. Department of Labor, Employment and Training Administration, based upon state employment security agencies' quarterly reports, 1994.

was second only to Delaware in 1993. Delaware is consistently high in incorporations because state laws facilitate corporate organization. Region IX (the far Southwest) experienced the largest percentage growth in the number of incorporations. Within Region IX, Arizona led in the percentage increase in the number of new incorporations. California had the greatest increase in the number of incorporations in 1993, probably a reaction to the decline experienced in 1992. Region VI (the near Southwest) experienced the slowest rate of increase in the number of incorporations, largely because of a decline in incorporations in Arkansas and Louisiana. The rate of increase in incorporations was also below average in Region II (New York, New Jersey) where the greatest percentage decline in the number of new incorporations occurred in New Jersey.

Business Bankruptcies and Failures

The number of small business failures and bankruptcies both decreased markedly in 1993 (Table 1.6). This is an improvement over the 1990–1992 period when failures increased over the previous year for three consecutive years. Business failures represent business closings reported to Dun & Bradstreet, with a financial loss to one or more creditors. This definition is much narrower than that for terminations or discontinuances, which represent businesses ceasing to report employment, and may be closings with or without reported creditor losses. Not all firms, particularly those with no employees, are listed with Dun & Bradstreet and not all closing firms are reported as having an outstanding debt to a creditor. The result is that closings or "discontinuances" are about 10 times as frequent as closings with reported creditor losses.

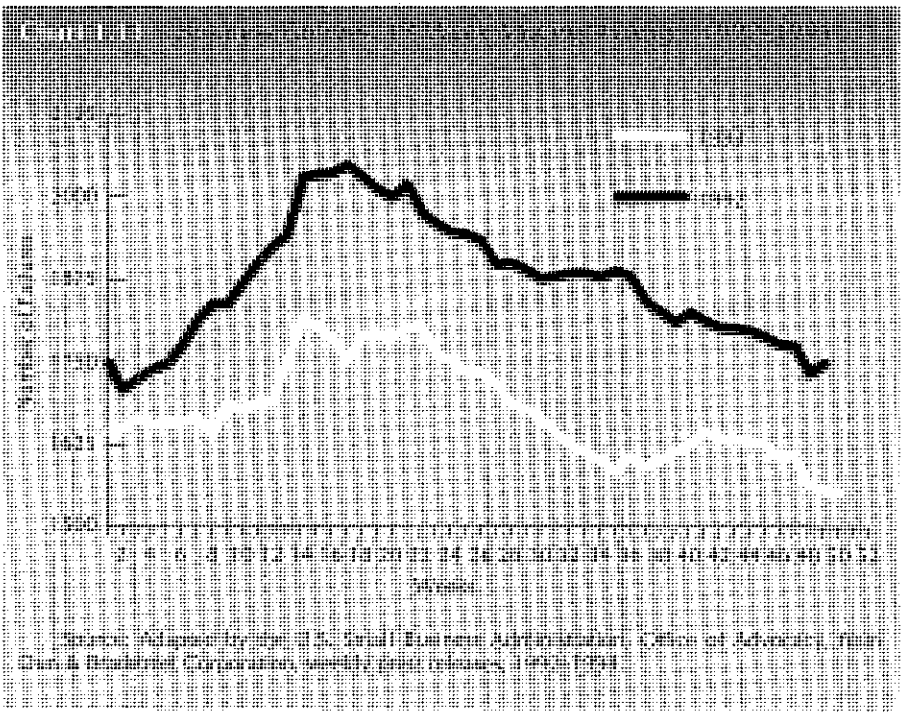
Not all business failures with a loss to a creditor end up in bankruptcy court. At the same time, there are some small business bankruptcies that escape listing with Dun & Bradstreet. Until 1990 the number of reported business bankruptcies exceeded the number of reported business failures. Since 1991 the coverage by Dun & Bradstreet has improved with the result that the number of recorded failures has exceeded the reported number of bankruptcies. This would indicate that time series comparisons of the difference between bankruptcies and failures should be viewed with caution. Again it is noted that the number of bankruptcies is only about one-tenth of the overall number of business terminations. In every year observed, the number of businesses that "fail" or apply to bankruptcy court is small compared to those that just close their doors, and is equal to about 1.5 percent of all firms reporting employment.

The typical seasonal pattern of business failures peaks in the first quarter as sales contract after the holiday season. Over this cyclical pattern, failures for 1993 are consistently lower than those of 1992 (Chart 1.13). The data are plotted at the date of the last entry, so the center of the data is actually six weeks earlier.

Business failures and bankruptcies decreased markedly in all regions but Region IX, where failures declined only slightly and bankruptcies actually increased (Table 1.7). This is a continuation of a pattern over the past few years as California undergoes a major change in industrial structure. Declining defense expenditures and cutbacks in military personnel affect California more than any other state.[3]

Region IV (the Southeast) exhibited strong overall performance for the second successive year with the second highest numerical reduction in failures and the greatest numerical reduction in bankruptcies. Region I (New England) showed above-average improvement in both bankruptcies and failures after below-average performance in 1992.

[3] See Chapter 4, which describes the effects of defense conversion on small businesses.



Proprietorship earnings are estimates, because the income tax statements on which they are based are delayed in both their receipt and analysis. The data in this series continued to show the highest levels of improvement in 1992 and 1993 since 1986, with gains of 9.2 percent in 1992 and 7.2 percent in 1993. Approximately 85 percent of small businesses are legally organized as proprietorships or partnerships.

The Changing Structure of Industry

Small business is playing a major role in the restructuring of U.S. industry. Sectors of the economy historically dominated by large business, such as manufacturing, are declining in their share of total employment while sectors that have traditionally been the province of small business, such as services, are expanding. The observed increases in the small business share of total employment are attributable more to the growth of industries in which small businesses have been leaders than to any current economic advantage of small operations.

Some industries now produce more with fewer people; this is the definition of improved worker productivity. Nowhere is this change more apparent than in manufacturing, which only recently had more than 70 percent of its employment in firms of over 500 employees. Manufacturing output has doubled over the past 25 years, but employment has fallen steadily (Chart 1.14). The strength and stability of this trend continues over the most recent five

Table 1.8 *Employment Compensation, Nonfarm Proprietorship Income, and Corporate Profits, 1982–1993 (Billions of Dollars)*

Year	Employment Compensation [1]		Nonfarm Proprietorship Earnings		Corporate Profits [2]	
	Amount	Percent Change	Amount	Percent Change	Amount	Percent Change
1993	3,772.2	5.3	397.3	7.2	467.3	14.8
1992	3,582.0	5.3	370.6	9.2	407.2	10.2
1991	3,402.4	3.4	339.5	4.4	369.5	2.2
1990	3,291.2	6.2	325.2	5.9	361.7	−0.3
1989	3,100.2	6.2	307.0	5.9	362.8	−0.6
1988	2,921.3	8.2	293.4	4.6	365.0	14.1
1987	2,698.7	6.9	279.0	6.7	319.8	17.7
1986	2,523.8	5.9	261.5	9.7	271.6	−3.3
1985	2,382.8	7.0	238.4	11.0	280.8	6.3
1984	2,226.9	9.7	214.7	16.5	264.2	24.2
1983	2,029.4	5.9	184.3	17.2	212.7	40.4
1982	1,916.0	157.3	151.5			

[1] Includes employee contributions for Social Security insurance.
[2] Includes inventory valuation and capital consumption adjustment.

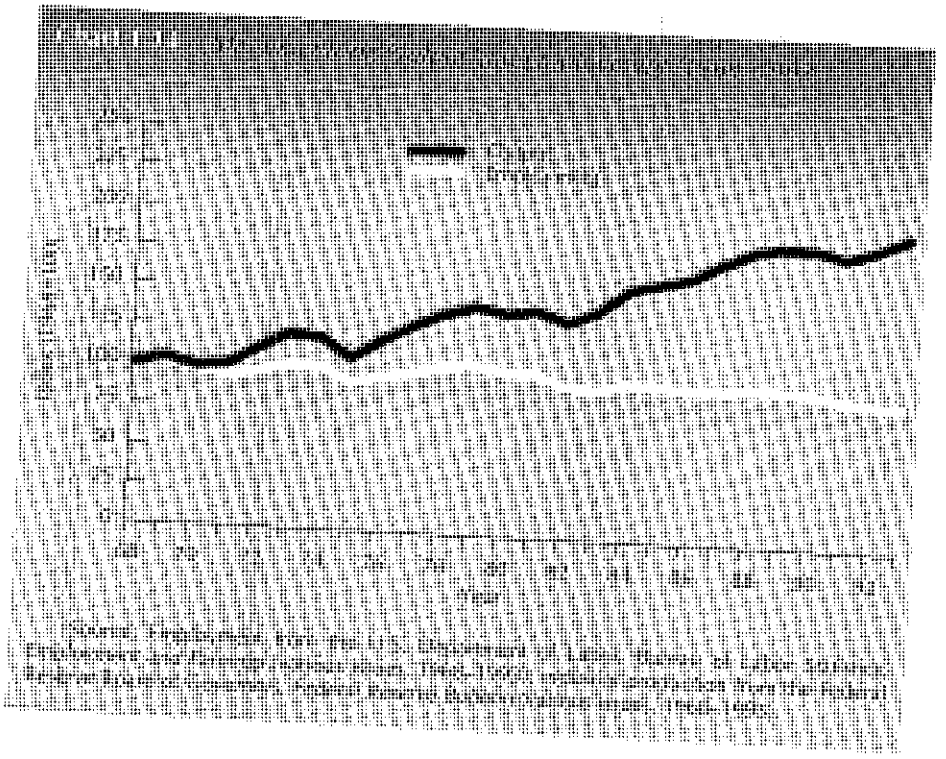
Note: The data are seasonally adjusted at annual rates. These are averages of the quarterly data. Employment compensation percent change is change in wage-and-salary income only for the entire year ending in December.

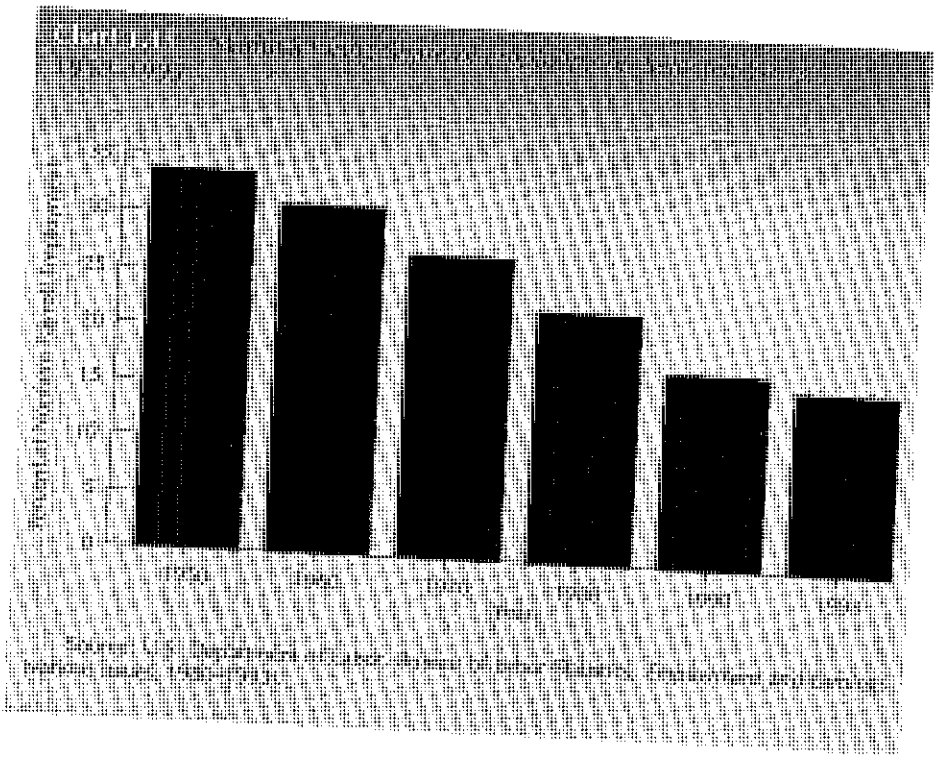
Source: Council of Economic Advisers, *Economic Indicators*, March 1994.

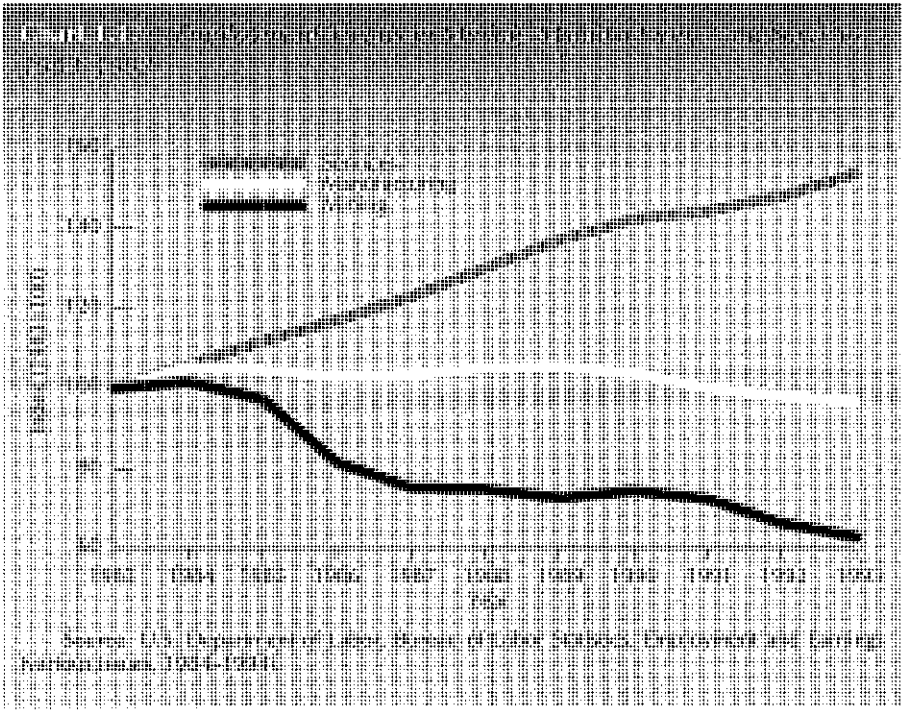
Productivity is not as easily measured in the service industries as in the goods-producing sectors where there is a physical product. So it is not easy to determine whether the rate of growth of service outputs is higher than the rate of growth of employment, but the growth of the service industries is easily seen in the rate of employment growth. Employment in the services sector has grown by nearly 60 percent in the past 10 years, while employment in mining and manufacturing has declined (Chart 1.17).

As the service sector grows, the firms within the sector grow as well. The average size of service-sector firms is now large enough that this sector is no longer termed "small-business-dominated," but rather " indeterminate."[4] As in retailing a decade ago, scale efficiencies are accruing to the industry as lines of business and methods of operation are streamlined, standardized, and

[4] A sector with 60 percent or more of its employment in firms with fewer than 500 employees is termed "small-business-dominated," a sector with 40.0 to 59.9 percent of its employment in firms with fewer than 500 employees is termed "indeterminate," and an industry with more than 60 percent of employment in firms of over 500 employees is termed "large-business-dominated."







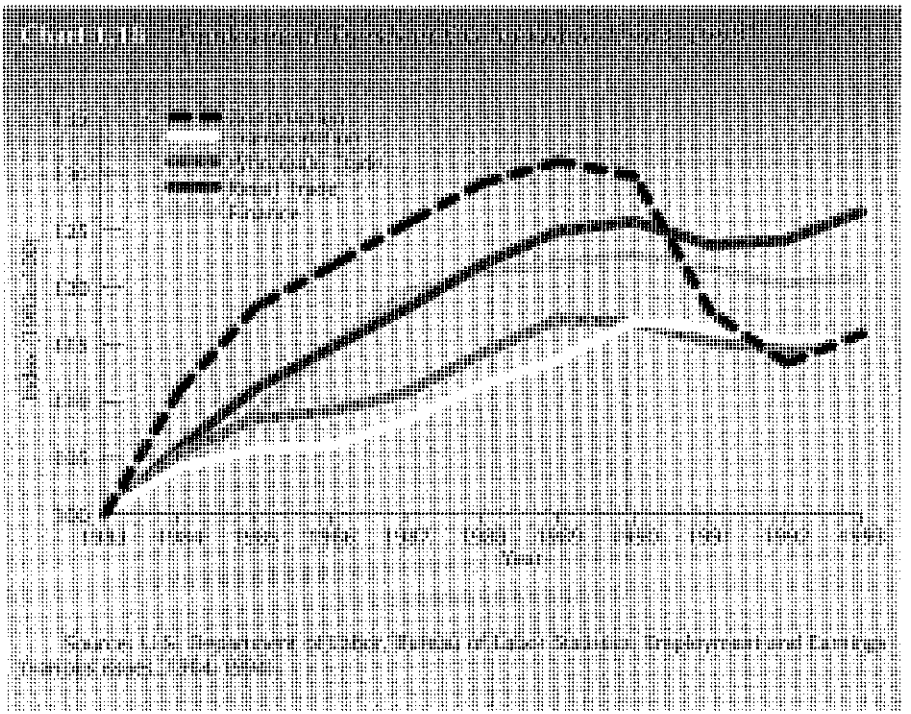


Table 1.9 *U.S. Employment by Industry, December 1992 and December 1993*

Industry	1990 Small Business Share (Percent)	December 1992 Employment (Thousands)	December 1993 Employment (Thousands)	Employment Change (Thousands)
Total, All Industries	**53.7**	**90,783**	**92,556**	**1,773**
Mining	39.7	613.0	607.0	−6.0
Construction	88.0	4,383.0	4,579.0	196.0
Manufacturing	37.7	17,928.0	17,748.0	−180.0
Transportation, Communications, and Public Utilities	35.4	5,759.0	5,752.0	−7.0
Wholesale Trade	66.9	6,088.0	6,137.0	49.0
Retail Trade	54.9	20,020.0	20,465.0	445.0
Finance, Insurance, and Real Estate	44.3	6,559.0	6,644.0	85.0
Services	60.2	29,453.0	30,624.0	1,171.0

Source: Employment is from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B–2. Employment share is calculated from special tabulations for the U.S. Small Business Administration, by the U.S. Department of Commerce, Bureau of the Census, based upon 1990 measurements.

Table 1.10 *Employment Change by Industry Type, December 1992 and December 1993*

Type ofIndustry	Total Employment Beginning of Period Millions)	Employment Change (Thousands)	Percent Change
Small-Business-Dominated	38.8	1,058.3	2.80
Indeterminate	19.3	704.2	3.64
Large-Business-Dominated	28.7	−217.2	−.76
Total	86.8	1,545.3	1.78

Note: Small firm dominance is calculated at the three-digit Standard Industrial Classification (SIC) level. Total employment was 90.3 million; the difference from the total shown reflects the omission of those industries that could not be measured at the three-digit SIC level.

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (February 1994), Table B–2 and Bureau of the Census, special tabulation for the U.S. Small Business Administration, Office of Advocacy, 1993. *Employment and Earnings* was used to measure employment; the special Census tabulations to determine small- and large-firm domination.

Table 1.12 *Change in Employment by Size Category and Major Industry, December 1992 and December 1993 (Percent)*

Industry	Industry Totals	Small-Business-Dominated Industries	Indeterminate Industries	Large-Business-Dominated Industries
Total, All Industries	**1.93**	**2.80**	**3.64**	**−0.76**
Mining	−0.98	0.00	5.65	−5.48
Construction	4.47	3.82	NA	NA
Manufacturing	−1.00	0.00	0.70	−1.97
Transportation	−0.12	1.05	0.93	−1.03
Wholesale Trade	0.81	1.48	0.64	0.54
Retail Trade	2.22	3.81	−0.93	−0.99
Finance	1.30	0.22	3.06	1.22
Services	3.98	3.23	6.88	1.12

NA = Indicates lack of industry representation within that size category.

Note: Data exclude self-employed workers. Small-business-dominated industries are industries in which 60 percent or more of employment is in firms with fewer than 500 employees. Large-business-dominated industries are industries that have 60 percent or more of employment in firms with more than 500 workers. A third set of industries, in which 40.1 to 59.9 percent of employment is in firms with fewer than 500 employees, constitutes an indeterminate group, where dominance is unclear.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B.2. Small- and large-business-dominated industries are calculated from special tabulations prepared for the U.S. Small Business Administration, Office of Advocacy, by the U.S. Department of Commerce, Bureau of the Census, based upon 1990 measurements.

one-half times as fast as the industry as a whole. This is partly the result of downsizing and restructuring by large banks and insurance firms and partly because of the formation of chain operations in industries such as real estate sales. The gain in the indeterminate category in mining is almost entirely attributable to the reduction of the average size of firms in a declining industry.

Employment Changes and Firm Size

The small business contribution to employment growth in the United States is mirrored in the comparison of employment growth in the 15 fastest growing small-business-dominated industries with employment growth in the 15 fastest growing large-business-dominated industries (Table 1.13). Four of the 15 largest contributors to employment growth among the small-business-dominated industries are in health care and social services and five are in construction, building material sales, and home furnishings. All five of the latter are related to the recovery in home building experienced in 1993. The increased employment in health care and social services represents a permanent change in industrial structure in the United States.

Eating and drinking places added the most new jobs, but this increase was small as a percentage of the industry, which employs 7 million persons. The percentage increase in employment in eating and drinking places was slightly higher than in all small-business-dominated industries. Miscellaneous retailing (not classified by detail) contributed over 40,000 jobs, going against the trend toward larger businesses in retailing. In spite of their smaller size, the 15 largest job contributors among small-business-dominated industries contributed almost four times as many new jobs as the 15 largest job contributors among large-business-dominated industries.

The largest job contributors among the large-business-dominated industries were in private education, followed by security dealers. Automobile manufacturing registered increased employment only because the industry was recovering from the reduced sales levels of 1992. Longer term increases in automobile manufacturing employment are not expected as worker productivity in the industry continues to increase. The other manufacturing entries were construction-related: household appliances and air conditioning equipment. Specialty retailing was represented by family clothing stores, which posted a gain of nearly 16,000 employees. The gain of nearly 18,000 hospital employees was surprisingly small as a fraction of the industry employment of nearly 4 million.

The dynamics of industry growth and change can be traced using the relative percentage growth and decline of industries instead of a count of employees. A picture of some of this change is tabulated as the 15 fastest growing small-business-dominated industries and the 15 fastest growing large-business-dominated industries (Table 1.14). Specialty retailing is represented by meat and fish markets, miscellaneous retail stores, and home furnishings. The cyclical effect of the recovery in construction is reflected temporarily: three building trades and building materials dealers made the list. Health, business, and social services are all present among the small-business-dominated industries with the highest percentage growth in employment.

A picture of jobs lost is just as important as a review of jobs gained when analyzing the changing structure of industry. The 15 largest job losers in small- and large-business-dominated industries are compared (Table 1.15). Over 40 percent of the 65,000 jobs lost in the small-business-dominated group were in apparel manufacturing. The needle trades are an industry that is experiencing both automation and off-shore competition. The two listed are among the few small-business-dominated manufacturing industries. Losses among the other industries were small, 3,000 or less, and due mostly to office automation and other efficiency moves.

The employment losses among the 15 large-business-dominated industries are nearly five times as large in total as the job losses among the 15 small-business-dominated industries. More than one-third of the nearly 320,000 jobs lost were in defense-related manufacturing: aircraft, guidance systems, and missiles. Department store employment continued to decline in response to both restructuring and the rise of specialty retailing. Computer and office equipment continued its decline as small efficient personal com-

puters invaded the mainframe market. Other "white collar" industries reflected office automation and the associated industry restructuring.

Employment Changes and Relative Earnings

The 10 largest job losers among large-business-dominated industries accounted for a loss of nearly 273,000 jobs in 1993 (Table 1.16). The 10 small-business-dominated industries creating the most jobs added more than twice this number or nearly 604,000 employees. It is not unreasonable to speculate on what sorts of jobs are being supplied to replace the jobs that are lost and how much income is foregone in the lost positions to be replaced with the level of income in the new employment situation.

The average wage among the large-business-dominated group with the largest job losses is higher by nearly one-half than that of the small-business-dominated group with the largest employment gains. This does not mean that the work force is not as well off with the transfer of employment from large-business-dominated industries to small-business-dominated industries. The small-business-dominated group is adding twice the number of jobs lost by the large-business-dominated group. Not all the job losers from the large-business-dominated group will work at the lowest paying jobs created by the small-business-dominated group. These jobs are usually taken by young entry-level employees.

Mature wage earners released from large-business-dominated industries are not usually the ones that find work at the entry-level jobs offered by eating and drinking places. Enough jobs are created by the nine industries in this group other than eating and drinking places to occupy all of the job losers from the 10 large-business-dominated industries with the highest job losses. If one recalculates the average wage for the nine small-business-dominated industries, the result is an average wage almost exactly equal to the average wage foregone by the job losers in the large-business-dominated group. The small business sector is growing fast enough to accommodate these wage earners if they will learn the skills of the trade and service industries.

Women-Owned Businesses

More than 5.5 million sole proprietorships in the United States were owned by women in 1991 (Table 1.17). The share of proprietorships owned by women increased by one-half percentage point in 1991, to 32.7 percent (Table 1.18). The number of women-owned businesses has increased at a compound rate of 7.2 percent over the past 10 years, a rate nearly double the 3.8-percent compound annual rate of growth in the number of men-owned businesses. The number of women-owned businesses increased by over 200,000 in 1991 over 1990, a gain of nearly 4 percent.

Among the regions of the country, Region VII (the Plains) and Region X (the Northwest) had the highest percentage of women-owned businesses, at 37.4 and 35.2 percent, respectively (Table 1.19). Region VI (the near Southwest) shows the lowest percentage at 27.9 percent after a decline of 23,000

Table 1.16 *Comparison of Jobs Lost in Large-Business-Dominated Industries with Jobs Gained in Small-Business-Dominated Industries, December 1992 to December 1993*

	Job Change (Thousands)	1990 Average Wage (Thousands of Dollars)
The 10 Small-Business-Dominated Industries with Greatest Job Gains		
Eating and Drinking Places	281.4	8.1
Offices and Clinics of Doctors of Medicine	56.1	45.3
Retail Stores, n.e.c.	40.3	13.0
Automotive Repair Shops	37.9	18.9
Motor Vehicle Dealers, New and Used	37.5	26.2
Residential Care	35.6	13.0
Services to Dwellings and Other Buildings	30.3	10.4
Management and Public Relations Services	29.3	32.0
Home Furniture and Furnishing Stores	28.8	16.7
Lumber and Other Building Materials Dealers	26.7	18.6
Total Job Gain and Average Payroll Per Worker	603.9	16.4
The 10 Large-Business-Dominated Industries with Greatest Job Losses		
Aircraft and Parts	−74.2	37.3
Department Stores	−44.8	12.0
Computer and Office Equipment	−33.7	37.6
Search, Detection, Navigation, Guidance Systems and Equipment	−24.5	38.3
Telephone Communications	−24.5	34.3
Guided Missiles, Space Vehicles	−22.2	42.0
Miscellaneous General Merchandise Stores	−15.1	11.6
Laboratory Apparatus and Analytical, Optical Measuring and Controlling	−12.1	31.7
Ship and Boat Building and Repairing	−10.9	26.0
Women's Clothing Stores	−10.7	9.2
Total Job Loss and Average Payroll Per Worker	−272.7	23.8

n.e.c. = Not elsewhere classified.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B–2. The size distribution by industry is taken from special tabulations prepared by the U.S. Department of Commerce, Bureau of the Census, 1993.

Table 1.17 *Nonfarm Sole Proprietorship Businesses by Gender, 1981–1991*

Year	All Proprietorships*	Women-Owned	Men-Owned
1991	16,957,636	5,548,514	10,913,493
1990	16,596,384	5,347,533	10,806,760
1989	15,920,963	4,977,143	10,454,387
1988	15,158,567	4,610,951	10,027,537
1987	14,548,946	4,462,264	9,576,494
1986	13,798,340	4,121,352	9,243,927
1985	13,296,751	3,738,107	9,075,651
1984	12,495,141	3,382,769	8,643,431
1983	11,781,015	3,254,248	8,064,812
1982	11,170,204	2,942,366	7,787,830
1981	10,545,337	2,780,277	7,480,655
Average Annual Percentage Change: 1981–1991	4.9	7.2	3.8

*Includes jointly owned nonfarm sole proprietorship businesses; therefore, women-owned and men-owned nonfarm sole proprietorships will not sum to total.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data prepared by the U.S. Department of the Treasury, Internal Revenue Service, 1994.

Table 1.18 *Share of Nonfarm Sole Proprietorships by Gender, 1981–1991 (Percent)*

Year	Women-Owned	Men-Owned
1991	32.7	64.4
1990	32.2	65.1
1989	31.3	65.7
1988	30.4	66.2
1987	30.7	65.8
1986	29.9	67.0
1985	28.1	68.3
1984	27.1	69.2
1983	27.6	68.5
1982	26.3	69.7
1981	26.4	70.9

Note: Data do not sum to 100.0 because jointly owned sole proprietorships, which make up 3 to 4 percent of all nonfarm sole proprietorships, are omitted.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data prepared by the U.S. Department of the Treasury, Internal Revenue Service, 1994.

Table 1.20 *Nonfarm Sole Proprietorships by Gender of Owner and Industry Group, 1980 and 1991*

Industry	1980			1991			Percent Change (1980–1991)	
	All Nonfarm Businesses	Women-Owned Businesses	Women's Share of Total	All Nonfarm Businesses	Women-Owned Businesses	Women's Share of Total	All Nonfarm Businesses	Women-Owned Businesses
Total, All Industries	**9,730,019**	**2,535,240**	**26.1**	**16,957,636**	**5,548,514**	**32.7**	**74.3**	**118.9**
Agriculture, Forestry, and Fishing	307,720	30,811	10.0	465,258	83,776	18.0	51.2	171.9
Mining, Construction, and Manufacturing	1,409,280	84,221	6.0	2,437,812	228,454	9.4	73.0	171.3
Transportation, Communications, and Public Utilities	438,795	27,696	6.3	722,602	122,827	17.0	64.7	343.5
Wholesale and Retail Trade	2,527,084	824,771	32.6	3,051,122	1,200,839	39.4	20.7	45.6
Finance, Insurance, and Real Estate	1,048,966	354,801	33.8	1,544,798	536,131	34.7	47.3	51.1
Services	3,918,166	1,212,940	31.0	8,736,044	3,376,486	38.7	123.0	178.4

Note: Detail may not add to totals because of disclosure rules regarding the release of taxpayer information.
Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data prepared by the U.S. Department of the Treasury, Internal Revenue Service, 1993.

Chapter 2

Health Insurance Coverage: A Profile of the Uninsured by Firm Size and Employment Status

Synopsis

Health care reform has been among the top priorities on the domestic policy agenda. Although various health care reform proposals differ dramatically, two issues are central to most of them: expanding health coverage to the uninsured and controlling runaway costs. The current private health care system for most of the population is an employment-based system which, in turn, provides for a family-based insurance system. Many current reform proposals could have significant impacts on small businesses, their work forces, and the families of workers.

The government's role in the provision and financing of health care has grown significantly since the mid-1960s with the establishment of the Medicare and Medicaid programs. Medicare is a nationwide federal health insurance program for people over 65 and for those with disabilities. Medicaid is a federal-state matching entitlement program that provides medical benefits to certain categories of low-income individuals. Some health reform proposals would modify the Medicare and Medicaid programs to reduce the number of uninsured.

The lack of affordability and accessibility of health insurance is a major problem in the United States that continues to grow.

According to 1993 data from the Census Bureau, 14.7 percent—or 37.4 million persons—lacked health insurance of any kind. The number of uninsured increased almost 21 percent between 1988 and 1993, reflecting, to a significant degree, rapidly increasing health care costs, as well as the effect of the 1990–1991 recession, which resulted in significant downsizing of large firms.

Almost two-thirds of the uninsured (22.4 million people) are working, and two-thirds of the working uninsured are either in firms with fewer than 500 employees (12.2 million) or self-employed (2.6 million). The high proportion of uninsured among workers in small businesses and the self-employed is the result of a combination of factors, including the characteristics of firms and their workers. These characteristics help shape decisions about insurance availability, eligibility, and participation.

The difference between the levels of insurance coverage in large and small firms narrows considerably when coverage from all sources is considered; that

the unemployed, low-income workers, and those who are "uninsurable." A person's lack of health coverage typically results from a wide range of barriers.

The purpose of this chapter is to discuss who is uninsured, focusing on the working uninsured in terms of firm size and employment status, e.g., wage-and-salary workers and the self-employed. The nonworking uninsured also are analyzed. Most of the uninsured are owners or employees of small firms, or are the dependents of those who own or are employed in small firms.[3] It is important to obtain more specific information about the characteristics of the working uninsured as well as their dependents, and to examine changes in the number and characteristics of the uninsured.

Data on the number and characteristics of the uninsured are important to the debate over the best method of providing medical care, and are also important for estimating the costs of health reform proposals. For example, estimating health costs under various reform options is complicated by the fact that current cost data reflect utilization rates of the insured. Detailed utilization rates of the uninsured population, whose demographic characteristics are very different from the currently insured, are very important for estimating the cost of expanded health insurance coverage.

Health Insurance and Small Business

Any reform alternative under discussion is likely to have significant effects on small businesses, and the health of the economy is closely linked to the health and growth of the small business sector. Continued unavailability and high cost of insurance for small firms could adversely affect future small firm job growth and the health of the economy as well.

Data on firms that do not offer health benefits indicate that the characteristics of these firms are very different from those of firms that offer health benefits. In addition, the characteristics of workers employed by small firms are different from those of workers in large firms; thus, any health reform affecting small businesses may also selectively affect certain categories of workers. To better understand the effect of various reform options on small businesses it is necessary to collect information, by firm size, on the availability and comprehensiveness of health coverage and the characteristics of firms and workers.

The Uninsured

For the most part, obtaining health insurance in the United States is a private, voluntary decision. Exceptions include insurance under Medicare and Medicaid. The demand for insurance is similar to the demand for other goods and services, and depends on the ability and willingness to pay for it. Most of the

[3] According to the Employee Benefits Research Institute (EBRI), in 1992, 84.4 percent of the uninsured lived in a family headed by a worker. Although some of the uninsured were in families whose family head experienced unemployment during 1992, 60.2 percent were in families whose family head was employed throughout the year working either full- or part-time. *EBRI Notes*, vol. 14, no. 12 (Washington, D.C.: Employee Benefit Research Institute, December 1993), 4.

1–9 employees), corporations are more than twice as likely to provide a plan than a sole proprietorship or an S corporation of the same size.[7]

What are the reasons for not offering health insurance? Employers frequently cite high worker turnover, lack of interest by workers, high administrative costs and costly state mandates.[8] These reasons combine to keep small employers from offering health insurance because they just cannot afford to do so. About two-thirds of the smallest firms (with fewer than 10 workers) without health insurance cited insufficient profits and high insurance costs as major reasons for not offering coverage.[9]

Worker Eligibility and Participation in a Plan

Worker characteristics, both demographic and employment-related, can have a major effect on whether a worker and his or her family are eligible for and will participate in health insurance if it is offered by a firm. For example, workers in small firms and the self-employed often encounter the problem of medical underwriting, where individuals are excluded from insurance plans because of pre-existing conditions or poor health.

The profile of a typical ineligible worker is a young, unmarried, low-wage, part-time employee in a service occupation in the retail or construction sector who has worked for his or her current employer for less than a year.[10]

Even if insurance is offered, eligible individuals can choose not to elect coverage. For example, workers of different ages, gender, and marital status have different ideas about the need for and the amount of coverage relative to their cost of insurance.

Younger workers tend to be less interested in health insurance than older workers because many young workers believe they are healthy and do not need health insurance. Older workers, who are more likely to be less healthy and to place a higher priority on insurance, may not participate because they find it too expensive. Women workers, especially those who are heads of households, are likely to be very concerned with health care coverage and are very likely to participate if offered. But women or men who are secondary workers are frequently covered by a spouse's plan with better benefits and are less likely to want their employer's plan. Data indicate approximately 14 percent of eligible workers in

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[7] Many sole proprietorships are part-time businesses or side businesses, in which the owner is covered elsewhere.

[8] Because small firms frequently buy state-regulated commercial insurance, they incur costs connected with state-mandated benefits and pay state insurance premium taxes. These mandates may be costly and affect whether an employer offers insurance. On the other hand, self-insured plans are exempted from providing state-mandated benefits and paying state premium taxes under the Employee Retirement Income Security Act (ERISA). *Economic Report of the President* (1993), 136–137.

[9] Lewin/ICF, *Increases in Health Insurance Coverage Among Small Firms, 1986–1988* (Washington, D.C.: a special report prepared for the National Association for the Self-Employed, June 7, 1988), 5.

[10] Jules H. Lichtenstein and Hazel A. Witte, "Government and the Special Circumstances of Small Employers," in *Rescuing American Health Care: Market Rx's* (Washington, D.C.: The NFIB Foundation, 1991), 41.

ance of any kind (Chart 2.1, Table 2.1).[15] The number of uninsured has increased from 31.0 million in 1988. In 1993, 22.4 million of the 37.4 million uninsured, almost 60 percent, were working (Chart 2.1 and Table 2.2). The number in the working population without health insurance increased from 17.6 million in 1988 to 22.4 million in 1993.

Just over 68 million in the working population, 26.7 percent of the population, were covered through their own employer, and almost 63 million individuals in the working population and family members (24.6 percent) were covered by another's employer-sponsored plan (Table 2.3). More than 86 million persons (33.8 percent) had nonemployer health insurance (Table 2.3).[16]

The Working Population With and Without Insurance

The working population can be divided into wage-and-salary workers and the self-employed (Chart 2.1). The group of wage-and-salary workers of primary concern here is private nonagricultural wage-and-salary workers.

Uninsured Wage-and-Salary Workers

Workers can obtain health insurance directly from their employer or from other sources. These other sources include coverage under someone else's employer-provided health insurance or other private health insurance, direct private insurance, and government-provided health insurance, such as Medicare, Medicaid and other government sources.[17] Employees of small firms are less likely to be covered under a health insurance plan offered by their own employer than are employees of large firms. Only about 28 percent of workers in firms with fewer than 25 employees are covered by their own employer's health plan compared with about 66 percent of workers in large firms with 500 or more employees (Table 2.4, Chart 2.2).

An equally important issue in the health care reform debate is the extent to which health insurance coverage from any source differs for workers in small versus large firms. The level of noncoverage from any source among workers is inversely related to firm size: that is, the smaller the firm, the larger the proportion of workers without health insurance. In 1993, among workers in the smallest firms with fewer than 10 employees, 29.5 percent lacked any health insurance (Table 2.4). At firms with 25–99 employees, 20.3 percent lacked any health insurance. This compares with 11.0 percent of workers in large firms with 500 or more employees.

If workers in small firms and their family members obtain health insurance from other sources so that their coverage is similar to that of workers in

[15] The latest CPS data analyzed in this chapter are for March 1993. March 1994 data are available but could not be included in this report.

[16] Berger et al., *Measuring the Uninsured*, 19.

[17] For a description of nonemployer sources of insurance see Appendix Table 2.24.

Table 2.1 *Insured/Uninsured Population in the United States, 1988–1993*

Year	Total		Insured		Uninsured	
	Percent	Number (Millions)	Percent	Number (Millions)	Percent	Number (Millions)
1993	100.0	254.2	85.3	216.8	14.7	37.4
1992	100.0	251.4	85.9	215.9	14.1	35.5
1991	100.0	248.9	86.1	214.2	13.9	34.7
1990	100.0	246.2	86.4	212.8	13.6	33.4
1989	100.0	243.7	86.8	211.0	13.4	32.7
1988	100.0	241.2	87.1	210.2	12.9	31.0

Note: Rows may not add to totals because of rounding.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988–March 1993.

Table 2.2 *Uninsured Population in the United States, 1988–1993 (Millions)*

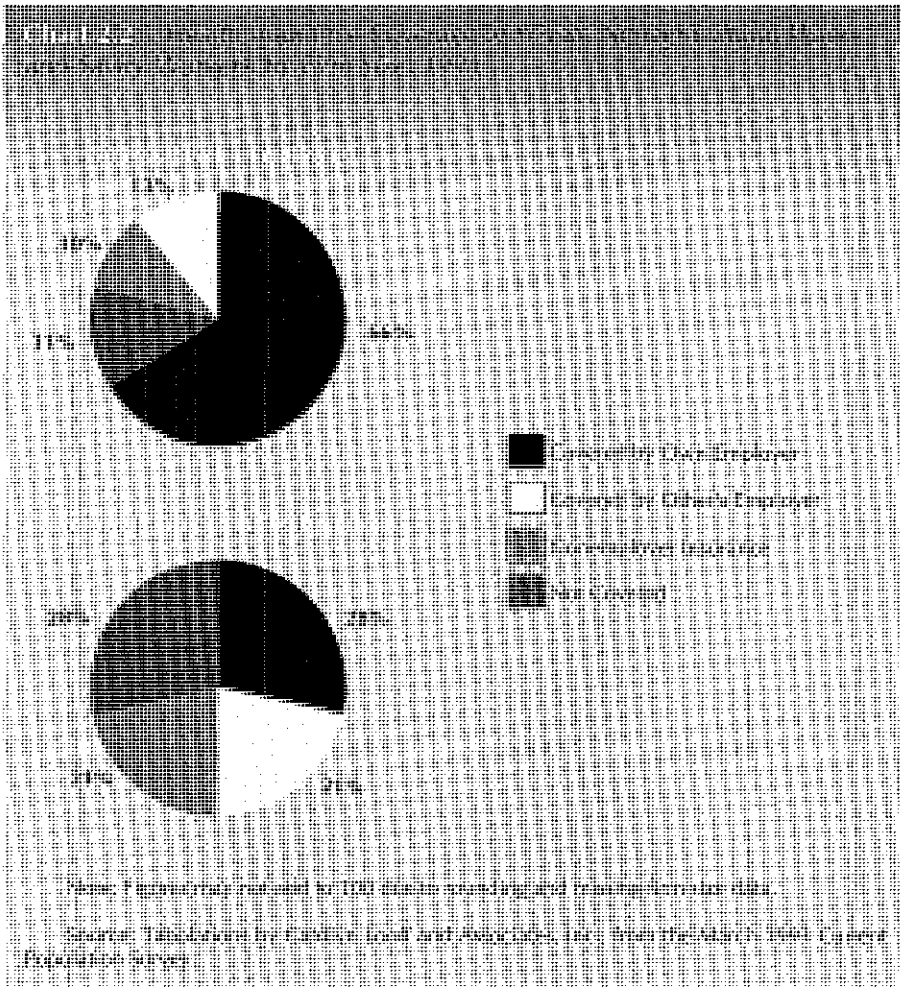
Year	Total Population	Uninsured		
		Total	Working Population	Nonworking Population
1993	254.2	37.4	22.4	15.1
1992	251.4	35.5	20.9	14.5
1991	248.9	34.7	20.4	14.3
1990	246.2	33.4	19.3	14.1
1989	243.7	32.7	19.1	13.6
1988	241.2	31.0	17.6	13.5

Note: Rows may not add to totals because of rounding.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988–March 1993.

large firms, then any employer mandate may not increase overall coverage as much as might be expected.[18]

Workers in small firms tend to obtain coverage from sources other than their own employer to a greater degree than workers in large firms. While 28.2 percent of workers in small firms with fewer than 25 employees receive coverage from their employer, an additional 42.4 percent receive coverage from other sources—i.e. coverage from a family member's employer or non-

[18] Analysis of the data in this study does not link the coverage of workers and their family members. Therefore, estimates of the working uninsured are lower than other estimates that include workers and their families. For an analysis of the link between workers and family members, see *EBRI Notes*, vol. 14, no. 12 (Washington D.C.: Employee Benefit Research Institute, December 1993), 4.



source of health insurance for a total of 50.3 million persons, including 26.3 million persons other than their own workers (Table 2.19). The comparable figures for large businesses with 500 or more employees are 60.8 million all told, including 34.5 million persons other than their own workers.

Trends in Worker Coverage and Noncoverage

Because health insurance data are collected every March, changes in the pattern of the uninsured can be examined. The longest period for which comparable data are available is from March 1993 to March 1988.[20]

[20] For detailed tables displaying March CPS data for 1988, 1989, 1990, 1991, 1992 and 1993, see Appendix. Note that 1994 March CPS data are available but were not included in this analysis. In addition, the firm size categories included in the 1992 and 1993 CPSs are more detailed than those in previous years.

Table 2.5 *Health Insurance Coverage of Wage-and-Salary Workers,* 1993 (Millions of Persons)*

Group	Employment Size of Firm					Total
	<10	10–24	25–99	100–499	500+	
Covered by Own Employer	3.0	3.7	7.8	9.5	26.3	**50.3**
Covered by Other's Employer						
<10	0.4	0.2	0.2	0.1	0.3	**1.2**
10–24	0.2	0.2	0.1	0.1	0.3	**0.9**
25–99	0.4	0.3	0.4	0.2	0.5	**1.8**
100–499	0.5	0.3	0.4	0.5	0.7	**2.4**
500+	1.5	1.1	1.4	1.2	3.5	**8.7**
Total	3.0	2.1	2.5	2.1	5.4	**15.1**
Nonemployer Coverage	3.1	1.9	2.2	1.6	3.9	**12.7**
Not Covered	3.9	2.7	3.2	2.4	4.4	**16.6**
Total	**13.2**	**10.6**	**15.4**	**15.7**	**39.9**	**95.2**

*Private nonagricultural wage-and-salary workers age 16 and over.
Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

Looking at coverage rates over a six-year period from 1988 to 1993, it is evident there has been a drop in coverage from both a worker's own employer and from any source, for workers in all firm size categories. The level of decline is almost the same across all firm size categories (Table 2.6). The rate of coverage has gone down as the costs of coverage have gone up. The 1990–1991 recession also probably had a negative impact on coverage during this period. In general, except that the number of uninsured has increased, uninsured patterns in 1988 are similar to those in 1993 (Tables 2.4 and 2.7 and Tables 2.5 and 2.8).

The Self-Employed Without Health Insurance

Health insurance premiums for the self-employed—unlike those for wage-and-salary workers—have not been fully deductible as a business expense. The self-employed are the smallest small businesses; if they employ any workers at all, they are in the smallest of firm size categories—fewer than 25 employees. It is therefore not surprising that health insurance coverage among the self-employed falls short of that among wage-and-salary workers.

March 1993 CPS data indicate that of 12.3 million self-employed, 9.7 million have some form of coverage, while 2.6 million or 21.1 percent lack any form of health insurance coverage, compared with 17.4 percent of private

Table 2.7 *Health Insurance Coverage of Wage-and-Salary Workers,* 1988 (Percent)*

Group	Total	Employment Size of Firm			
		<25	25–99	100–499	500+
Total Workers Age 16 and Over	100.0	100.0	100.0	100.0	100.0
Covered by Own Employer	56.1	30.5	53.4	63.4	70.1
Covered by Other's Employer	17.4	25.8	17.0	13.7	13.6
Nonemployer Coverage	12.4	20.3	13.1	9.8	8.4
Not Covered	14.1	23.3	16.3	12.4	8.1

*Private nonagricultural wage-and-salary workers age 16 and over.

Note: Figures may not add to totals because of rounding and missing firm size data.

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988.

wage-and-salary workers and 14.7 percent of the population in general (Chart 2.1 and Table 2.9). Coverage comes from a number of different sources. Almost 4 million (30.1 percent) are covered by a nonemployer plan. Another 3.1 million (25.2 percent) are covered through a family member's employer-sponsored plan. Still another 2.9 million (23.6 percent) are covered by their own firm's health insurance plan.

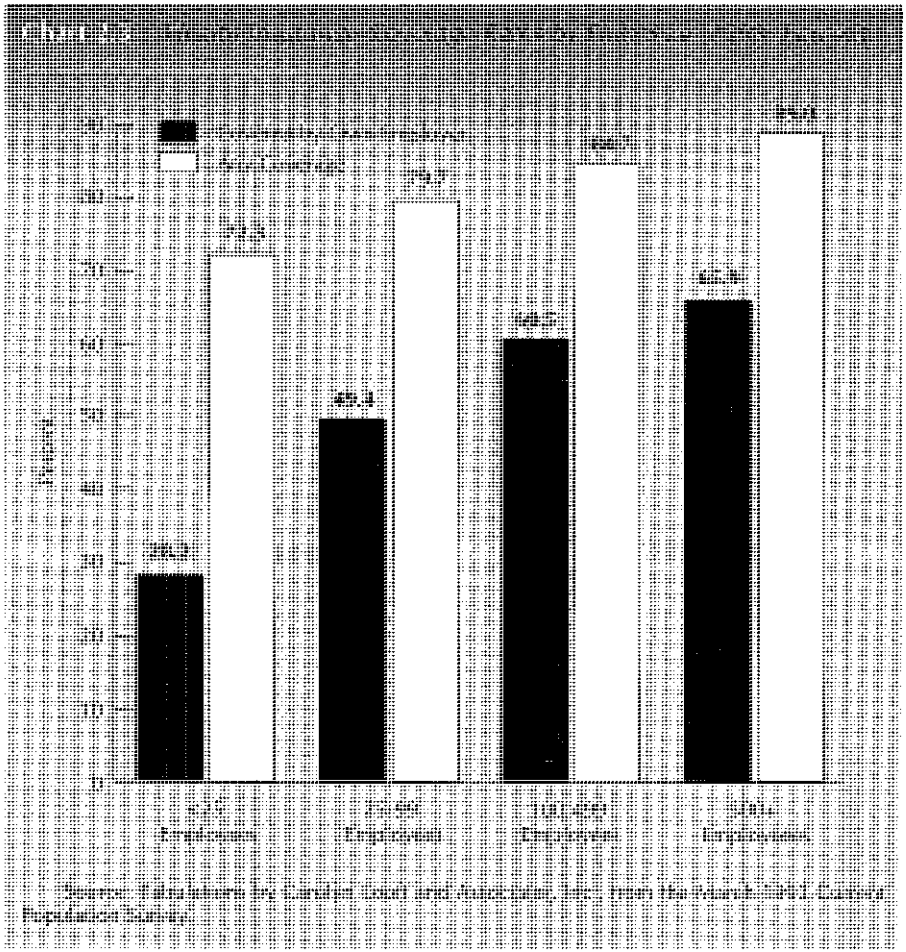
The unincorporated self-employed are significantly more likely to be uninsured than the incorporated self-employed. Almost 26 percent of the unincorporated self-employed lack coverage, compared with only 8.8 percent of the incorporated self-employed. This difference is due, in part, to the fact that the incorporated self-employed are considered wage-and-salary workers for tax purposes and can deduct 100 percent of health insurance expenditures, while the unincorporated self-employed have been able to deduct only 25 percent of insurance expenditures.

While wage-and-salary workers in small firms are more likely to receive insurance from family members working in large firms than in small firms, the self-employed receiving coverage from another worker's employer are equally likely to receive it from a worker in a small or a large firm (Table 2.10). This may be because the self-employed may be less likely to be secondary workers and are equally likely to have family members working in small and large firms.

There were declines in health insurance coverage among both the unincorporated and incorporated self-employed between 1988 and 1993 (Tables 2.9 and 2.11).

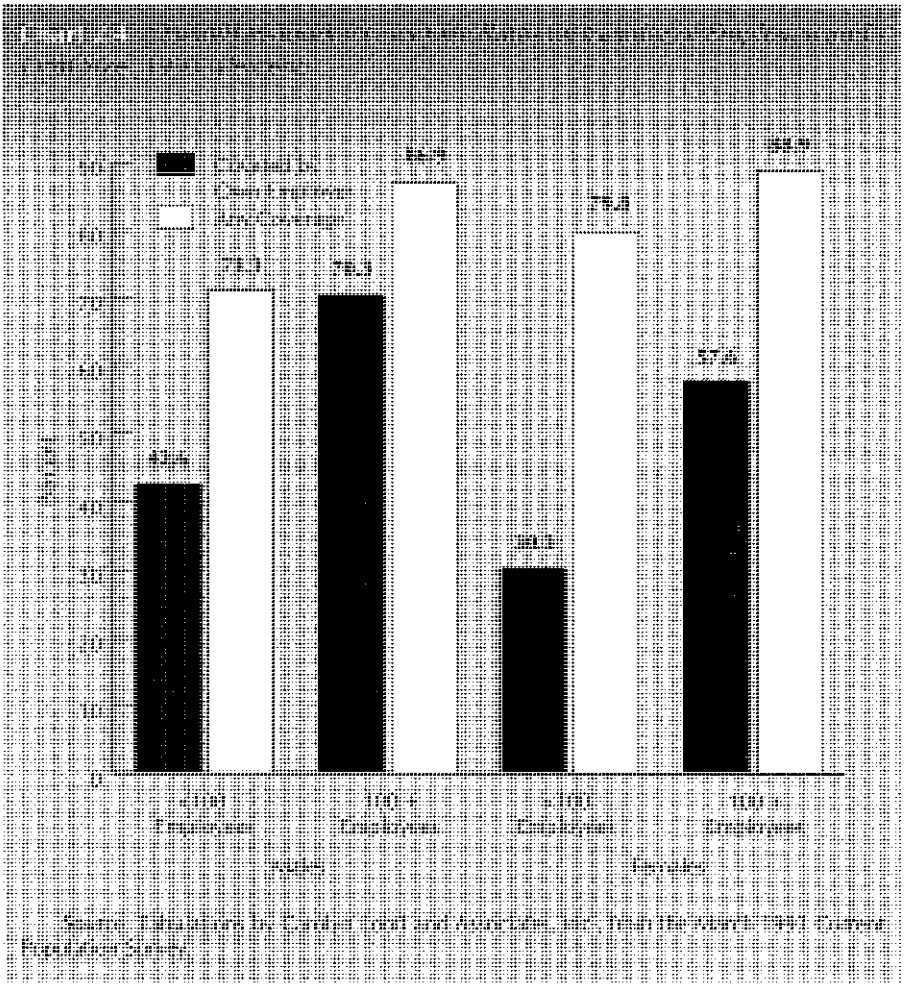
The Nonworking Population Without Health Insurance

More than 12 percent or 15.1 million people in the nonworking population were uninsured in 1993, up from 13.5 million in 1988 (Chart 2.1, Tables 2.2



Demographic Characteristics

Key CPS data permit analysis of the gender, age, race, marital status, and education of the working population by firm size. In 1993, among all private nonagricultural wage-and-salary workers 16 and older, men were uniformly more likely than women to receive health insurance coverage through their own employer's health plan (Chart 2.4). This pattern exists across all firm sizes, with the differences ranging from 8.0 to 14.1 percent (Table 2.13). Men's higher rate of coverage probably occurs because in households with both husband and wife present, the family is more likely to obtain health insurance through the husband's employer than the wife's employer. Women are more likely to be "secondary" workers than men and to be employed at jobs with lower wages and fewer benefits. Women workers, however, are more likely to have health insurance coverage from other sources, so that their overall coverage rate actually



workers, 45.1 percent in firms with fewer than 100 employees and 76.3 percent in firms with 100 or more employees have employer coverage (Table 2.13).

Workers 65 years and older are more likely than the youngest workers, but significantly less likely than prime age workers, to have a job that provides health insurance. This is because workers 65 and older qualify for Medicare, and if they are not covered through an employer they can fall back on Medicare coverage.[22] The coverage rate from any source for workers 65 and over is close to 100 percent, regardless of firm size. These workers are obviously not constrained by jobs for which an employer provides insurance.

[22] The 1982 amendments to the Age Discrimination in Employment Act (ADEA) require firms with 20 or more employees offering health insurance to also cover workers aged 65 to 69. The amendments require also that the employer's plan be the primary payer of health costs.

Table 2.11 *Health Insurance Coverage and the Self-Employed, 1988*

	Self-Employed		
	Unincorporated	Incorporated	**Total**
Covered by Own Employer			
Percent	20.0	56.7	**29.6**
Number (Millions)	1.7	1.7	**3.4**
Covered by Other's Employer			
Percent	25.9	16.7	**23.5**
Number (Millions)	2.2	0.5	**2.7**
Nonemployer Coverage			
Percent	32.9	20.0	**29.6**
Number (Millions)	2.8	0.6	**3.4**
Not Covered			
Percent	21.2	6.6	**17.4**
Number (Millions)	1.8	0.2	**2.0**
Total			
Percent	**100.0**	**100.0**	**100.0**
Number (Millions)	**8.5**	**3.0**	**11.5**

Note: Figures may not add to totals because of rounding.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988.

ers lacking a high school diploma receive employer-provided health insurance in firms with fewer than 100 employees, compared with 37.4 percent of high school graduates (Table 2.13). Differences in coverage rates by education reflect differences in the types of jobs and levels of compensation that accompany differences in education.[23] Health insurance coverage rates from any source do not differ by educational attainment as much as do employer-provided rates (Table 2.14).

Veterans are more likely than nonveterans to have employer-provided coverage across all firm sizes in part because veterans are older, on average, than nonveterans (Table 2.13). The same pattern holds for health insurance coverage from any source, although the difference between veterans and nonveterans is substantially lower (Table 2.14).

In short, workers who are young, unmarried, minority, and less educated are less likely to have health insurance than workers who are older, married, nonminority, and highly educated.

[23] Berger et al., *Measuring the Uninsured*, p. 24.

with fewer than 100 employees are uninsured compared with only 22.1 percent of their counterparts in non-central cities (Table 2.14).

Economic Characteristics

The availability and extent of health care coverage are also related to numerous worker economic characteristics including occupation, industry, and labor force status.

When all industries are examined, workers in retail trade, construction, and services are least likely to have employer-provided health insurance (Table 2.15). Workers in construction and retail trade are most likely to be uninsured (Table 2.16). Workers in the smallest firms in all industries are the least likely to have employer coverage and the most likely to lack coverage from any source.

Workers in services and agricultural occupations are least likely to have employer-provided health insurance, and coverage is also directly related to firm size: only 16 percent of service workers in small firms with fewer than 100 workers are covered compared with 37.8 percent in large firms (Table 2.15). On the other hand, managerial and professional workers are the most likely to receive employer-provided coverage. Workers in farming, forestry and fishing occupations are the most likely to be uninsured, irrespective of firm size, although the small firm workers are significantly more likely to lack insurance (Table 2.16).

Full-time workers, especially those in large firms, are much more likely to receive employer-provided coverage than part-time workers (Table 2.15). The likelihood of having employer-provided coverage varies with the number of hours worked. Workers are most likely to be uninsured if they work between 21 and 34 hours per week, probably because those working less time are secondary workers covered by another family member's insurance, and those working full-time (35 or more hours per week) are more likely to be offered insurance. Again, full-time workers are more likely to be uninsured in small firms than in large firms (Table 2.16). Part-year or seasonal workers are less likely to have employer-provided health coverage than full-year workers employed for more than 50 weeks a year, irrespective of firm size (Table 2.15).

Low-wage workers are less likely to have employer-provided health insurance coverage than high wage workers across all firm sizes; those in small firms are much less likely to be covered. Only 11.2 percent of workers in firms with fewer than 100 workers earning less than $5 per hour have employer-provided coverage compared with 20.9 percent in large firms with 100 or more workers (Table 2.15). Similarly, low-wage workers are more likely to be uninsured than high-wage employees irrespective of firm size.[24]

[24] It is also possible to examine the health insurance coverage of workers in for-profit and not-for-profit firms. Analysis of SIPP and CPS data indicates that there is a very small difference in the health insurance coverage rate of workers in for-profit firms compared with that of all workers. The CPS does not distinguish between employment at for-profit and not-for-profit firms. Wave 4 of the 1990 SIPP, however, does contain a question about the for-profit status of the respondent's employer. Berger et al., *Measuring the Uninsured*, 6.

Veteran	67.7	29.0	45.5	36.6	66.5	70.0	80.5	49.3	77.9	55.7
Nonveteran	51.0	22.4	34.0	27.5	47.5	59.3	63.6	35.4	62.3	42.2
Northeast Region	55.9	27.7	37.3	32.1	53.0	63.2	67.8	41.0	66.4	47.8
Midwest Region	55.0	23.8	39.0	31.0	49.4	60.3	67.7	38.9	65.5	45.5
South Region	50.1	20.2	31.7	25.3	47.3	58.0	63.6	33.5	62.1	40.0
West Region	51.7	22.5	34.1	27.3	49.3	61.6	65.3	36.0	64.3	42.7
Metropolitan Area	53.9	23.8	36.9	29.8	50.7	60.3	66.0	38.4	64.4	44.7
Nonmetropolitan Area	49.1	20.4	28.7	23.9	44.5	61.4	65.1	31.1	63.9	39.5
Central City	50.2	21.8	31.9	26.4	47.1	57.1	62.9	35.3	61.2	41.4
Non–Central City	53.8	23.3	36.1	29.0	50.4	61.6	66.7	37.4	65.3	44.3
Total	**51.0**	**23.0**	**35.1**	**28.4**	**49.5**	**60.5**	**65.8**	**36.8**	**64.3**	**43.6**

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

Veteran	88.3	70.5	79.6	74.7	88.9	88.0	93.9	80.8	92.4	83.0
Nonveteran	81.8	70.6	73.7	71.9	78.5	84.6	88.2	74.6	87.2	77.4
Northeast Region	87.1	76.8	80.6	78.5	85.1	88.5	92.3	81.3	91.1	83.5
Midwest Region	86.3	75.6	80.7	78.0	83.4	87.8	91.3	80.3	90.3	82.6
South Region	78.4	66.3	67.5	66.8	75.2	80.4	85.9	69.9	84.5	72.7
West Region	80.2	67.3	71.9	69.2	76.0	84.1	88.0	71.9	86.9	75.1
Metropolitan Area	83.0	70.5	74.7	72.4	80.1	84.9	89.3	75.6	88.1	78.2
Nonmetropolitan Area	80.9	70.8	72.7	71.6	77.7	85.2	87.6	73.7	86.9	76.9
Central City	76.3	70.5	74.7	63.2	72.0	79.8	84.7	66.9	83.3	70.6
Non–Central City	84.6	70.8	72.7	75.0	82.4	86.7	90.3	77.9	89.3	80.4
Total	**83.6**	**70.6**	**74.3**	**72.2**	**79.6**	**85.0**	**89.0**	**75.2**	**87.8**	**78.0**

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

1–26 Weeks Worked	14.0	7.2	9.1	8.0	13.9	19.3	17.9	10.0	18.3	12.1
27–49 Weeks Worked	34.9	15.8	25.7	20.1	36.1	42.5	43.9	26.1	43.4	30.2
50–52 Weeks Worked	65.6	31.4	46.1	38.2	61.4	72.5	77.5	48.1	76.1	55.7
$5.00 or less per Hour	15.6	7.5	10.4	8.7	16.4	22.7	20.1	11.2	20.9	13.6
$5.01–$10.00 per Hour	45.8	22.7	33.9	27.7	45.9	56.4	55.2	34.9	55.6	40.5
$10.01+per Hour	74.1	39.1	56.1	47.2	69.5	76.8	83.4	57.6	81.8	64.3
Total	**51.0**	**23.0**	**35.1**	**28.4**	**49.5**	**60.5**	**65.8**	**36.8**	**64.3**	**43.6**

*Fewer than 50 observations.

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

1–26 Weeks Worked	72.0	69.2	69.5	69.3	72.0	70.0	75.6	70.2	73.9	70.2
27–49 Weeks Worked	74.0	64.6	67.5	65.8	72.2	76.3	81.3	68.2	79.7	70.2
50–52 Weeks Worked	86.8	73.1	77.8	75.3	83.4	89.8	92.5	78.7	91.7	82.1
$5.00 or less per Hour	67.7	63.7	63.6	63.7	64.1	71.2	72.8	63.8	72.3	65.3
$5.01–$10.00 per Hour	77.8	66.5	71.9	68.9	77.0	80.5	84.0	72.1	83.0	74.3
$10.01+per Hour	92.5	83.2	85.6	84.4	89.9	93.2	95.7	87.0	95.1	89.2
Total	**83.6**	**70.6**	**74.3**	**72.2**	**79.6**	**85.0**	**89.0**	**75.2**	**87.8**	**78.0**

*Fewer than 50 observations.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

Table 2.17 *Health Insurance Coverage Rates of Wage-and-Salary Workers and the Self-Employed from Any Source by Demographic Characteristics, 1993*

Demographic Group	Private Nonagricultural Wage-and-Salary Workers Age 16 and Over	Self-Employed
Males	80.3	76.5
Females	85.2	83.2
Age 16–24	74.0	68.0
Age 25–44	82.5	73.4
Age 45–64	88.1	81.8
Age 65+	96.7	97.1
Whites	84.1	79.8
Blacks	72.1	62.5
Others	76.9	66.9
Hispanics	61.5	49.5
Others	84.4	80.1
Married, Spouse Present	89.0	84.9
Others	74.7	59.2
Less than High School Graduate	69.0	60.9
High School Graduate	80.5	73.0
Some College	84.9	80.6
Bachelor's Degree or More	92.6	88.2
Veteran	88.3	83.5
Nonveteran	88.1	77.3
Northeast Region	87.1	82.0
Midwest Region	86.3	84.5
South Region	78.4	74.7
West Region	80.2	76.2
Metropolitan Area	83.0	78.8
Nonmetropolitan Area	80.9	78.0
Central City	76.3	74.8
Non–Central City	84.6	79.6
All Workers	**82.6**	**78.6**

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

While workers in small firms are less likely than workers in large firms to obtain health insurance from their own employer, the difference between firm sizes narrows when insurance from all sources is considered. In 1993, almost 30 percent of the 23.8 million workers in firms with fewer than 25 employees had employer-provided coverage, compared with 64.4 percent of the 55.6 million workers in firms with 100 or more employees. Coverage from any source, that is, from a worker's employer or another source, was 72.3 percent and 87.8 percent, respectively.

Workers in large firms are more likely to provide family coverage for workers in small firms than vice versa. This is probably because workers in large firms are more likely than workers in small firms to be offered health insurance, and when offered, insurance is likely to be more comprehensive and less costly in large firms. In 1993, 9.4 percent (5.2 million) of workers in small firms with fewer than 500 employees were covered by a worker in a large firm, compared with 4.5 percent (1.8 million) of workers in large firms who were covered by a worker in a small firm with fewer than 500 employees.

The lack of health insurance is higher among the self-employed (21.1 percent) than among private wage-and-salary workers (17.4 percent) and the population in general (14.7 percent). The unincorporated self-employed are significantly more likely to be uninsured than the incorporated self-employed. Almost 26 percent of the unincorporated self-employed lack any coverage, compared with only 8.8 percent of the incorporated self-employed. This is due, in part, to the differences in deductibility of health insurance costs between the two.

Workers who are uninsured are most likely to be employed in small firms; that is, generally workers in small firms are most likely to be younger, unmarried, minority, less educated, and living in the South or West. In terms of their economic characteristics, these workers are most likely to be employed in small firms in the retail, construction, and services industries and in service occupations. They also tend to work on a part-time, part-year basis and for low wages.

Appendix

The two major sources of data on the insured available from the Census Bureau are the Current Population Survey (CPS) and the Survey of Income and Program Participation (SIPP).

Current Population Survey

The Current Population Survey (CPS) is a monthly nationwide survey of approximately 57,000 households. It is the source of official government statistics on employment and unemployment. An important secondary purpose of the survey is to collect demographic information on variables such as age, gender, race, marital status, educational attainment, and family structure. Each March the CPS contains questions on health insurance along with other employment and demographic questions. The March survey has included a firm size question since

designed to provide detailed information on the economic situation of households and individuals. The universe is the noninstitutionalized nonmilitary resident population of the United States. A multistage stratified sampling design is used. Each year a new panel of households is selected for survey. Each panel is broken into four groups or "rotations" and each household is then interviewed at four-month intervals for eight or nine interviews or "waves." Each panel therefore, takes several years to complete.[29]

The 1986 and 1990 SIPP panels contain the Retirement and Pension Coverage Topical Module for a least one survey wave. This module contains firm size information for up to two employers during the four-month survey wave. At the sample time, data on employment status, including employment in nonprofit organizations, for up to two employers, and health insurance information are available as part of the core portion of the SIPP questionnaire. Thus, it is possible to construct estimates of the uninsured by firm size using SIPP data.

CPS Versus SIPP

Both the March CPS and SIPP have their advantages and disadvantages; however, overall the March CPS is better suited to measure the uninsured for several reasons: first, the CPS contains a larger cross section, surveying approximately 57,000 households each month, than SIPP, which contains somewhat fewer than 20,000 households in each panel. Second, each wave of SIPP is available on a less timely basis than the March CPS. Third, the March CPS is generally considered easier to use than SIPP, in part because of the rather complicated sample design of SIPP. Fourth, SIPP data do not provide measures of firm size in each wave of the survey, but only at selected intervals and only for individuals age 25 years and older.[30]

There are a few drawbacks to using the CPS. One is that workers employed at nonprofit firms are not identified. A second is that because the CPS classified those who receive a salary at their own incorporated business as being wage-and-salary workers, some self-employed could be missed if they are not properly identified and separated out. A third drawback is that there is some evidence available from SIPP data that there is underreporting of full-year health insurance status in the CPS.

[29] Berger, et al., *Measuring the Uninsured,* 11.

[30] Berger, et al., *Measuring the Uninsured,* 9.

Table 2.20 *Health Insurance Coverage of the Population, 1992 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm						Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			Total
	<10	10–24	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Covered by Own Employer	3.3	4.0	7.6	9.5	27.7	52.1	14.7	1.6	1.5	69.8	0.0	0.0	0.0	**69.8**
Covered by Other's Employer														
<10	0.4	0.2	0.2	0.1	0.2	1.2	0.3	0.1	0.4	2.0	2.4	1.0	3.4	**5.3**
10–24	0.3	0.3	0.1	0.1	0.2	1.0	0.2	0.1	0.1	1.4	1.9	0.7	2.6	**4.0**
25–99	0.4	0.3	0.5	0.2	0.5	1.8	0.3	0.1	0.2	2.4	3.3	1.3	4.6	**7.0**
100–499	0.5	0.3	0.4	0.5	0.6	2.3	0.5	0.1	0.4	3.3	4.5	1.7	6.1	**9.4**
500+	1.8	1.1	1.5	1.2	3.6	9.3	0.1	0.3	1.2	13.0	16.6	5.7	22.4	**35.4**
Total	3.5	2.2	2.7	2.1	5.2	15.9	3.7	0.7	2.3	22.4	30.2	10.5	40.7	**63.1**
Nonemployer Coverage	3.1	1.7	1.9	1.6	3.7	12.1	4.5	0.8	2.9	20.3	22.0	40.8	62.8	**83.1**
Not Covered	3.8	2.4	3.1	2.2	4.2	15.7	2.8	0.3	2.1	20.9	7.3	7.2	14.5	**35.5**
Total	**13.5**	**10.4**	**15.4**	**15.5**	**40.9**	**95.7**	**25.7**	**3.3**	**8.8**	**133.4**	**59.6**	**58.5**	**118.0**	**251.4**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1992.

Table 2.22 *Health Insurance Coverage of the Population, 1990 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm					Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			Total
	<25	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Covered by Own Employer	7.4	8.1	9.6	27.8	53.0	14.7	1.6	1.7	71.0	0.0	0.0	0.0	**71.0**
Covered by Other's Employer													
<25	1.1	0.4	0.3	0.6	2.4	0.6	0.2	0.4	3.5	4.4	1.8	6.2	**9.7**
25–99	0.7	0.5	0.2	0.5	1.9	0.3	0.1	0.3	2.6	3.7	1.4	5.1	**7.7**
100–499	0.9	0.5	0.5	0.7	2.6	0.5	0.1	0.3	2.4	4.7	1.7	6.4	**9.8**
500+	2.9	1.4	1.1	3.6	8.9	2.2	0.2	1.1	12.5	16.5	5.9	22.4	**34.9**
Total	5.7	2.9	2.1	5.6	16.2	3.7	0.7	2.1	22.5	30.9	10.8	41.7	**64.3**
Nonemployer Coverage	4.6	1.9	1.5	3.7	11.7	4.7	0.8	2.9	20.1	19.4	38.2	57.6	**77.6**
Not Covered	5.9	2.6	2.0	3.6	14.2	2.8	0.3	2.0	19.3	7.5	6.6	14.1	**33.4**
Total	**23.6**	**15.5**	**15.3**	**40.7**	**95.1**	**25.8**	**3.2**	**8.7**	**132.8**	**57.7**	**55.7**	**113.4**	**246.2**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1990.

Table 2.24 *Health Insurance Coverage of the Population, 1988 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm					Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			**Total**
	<25	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Covered by Own Employer	7.2	8.2	9.7	26.7	51.8	14.1	1.7	1.7	69.3	0.0	0.0	0.0	**69.3**
Covered by Other's Employer													
<25	1.3	0.3	0.3	0.6	2.5	0.6	0.2	0.5	3.8	4.5	1.9	6.4	**10.2**
25–99	0.7	0.5	0.2	0.4	1.9	0.4	0.0	0.3	2.6	3.7	1.4	5.1	**7.7**
100–499	1.0	0.5	0.5	0.7	2.7	0.6	0.1	0.3	3.7	4.8	1.9	6.7	**10.3**
500+	3.0	1.2	1.1	3.4	8.6	2.2	0.2	1.1	12.2	16.3	6.4	22.6	**34.8**
Total	6.1	2.6	2.1	5.2	16.1	3.9	0.5	2.2	22.7	31.0	11.7	42.6	**65.2**
Nonemployer Coverage	4.8	2.0	1.5	3.2	11.5	4.9	0.6	2.8	19.8	18.0	37.8	55.8	**75.6**
Not Covered	5.5	2.5	1.9	3.1	13.0	2.6	0.2	1.8	17.8	7.2	6.3	13.5	**31.0**
Total	**23.6**	**15.3**	**15.3**	**38.1**	**92.4**	**25.4**	**3.0**	**8.5**	**129.3**	**56.1**	**55.8**	**111.9**	**241.2**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988.

Chapter 3

Innovation by Small Firms

Synopsis

Technological change is responsible for a significant portion of increases in the standard of living. The economic effects of technological change take the forms of innovations and their diffusion, both in the consumer marketplace and in the intermediate processes of distribution and production. Innovations are of several types—product, process, service, and management—and benefit the economy in many different ways.

Small and large firms have many different advantages in innovation; for example, small firms are more flexible, while large firms can sometimes benefit from economies of scale. Small firms are estimated by The Futures Group to be responsible for 55 percent of manufacturing product innovations and produce twice as many innovations per employee as large firms, as well as twice as many significant innovations.

One factor influencing innovation is expenditures on research and development (R&D). The small firm percentage share of nonfederal R&D funds is almost three times its percentage share of federal funds. A federal R&D dollar to a small firm is more than four times as likely to be used for basic research as a federal R&D dollar to a large firm. The estimated rates of return on R&D are higher for firms with a university relationship. Compared with large firms, small firms appear to be able to transfer knowledge gained from external research associations more effectively, and thus to increase the returns to their total R&D activities.

There are a number of reasons for governments to stimulate innovation, a major one being that firms do not always have enough incentive to innovate because they cannot capture enough of innovation's benefits. Government involvement in innovation has taken several forms, including the research and experimentation tax credit and the Small Business Innovation Research (SBIR) Program. The phasing in of SBIR may have provided the impetus for growth in the small business share of federal contracts in research and development. The performance of small business in this respect has improved even more than the dollar amounts immediately involved in SBIR contracts would indicate.

Benefits of Innovation

Overall, technological changes, which are innovations and their diffusion, are credited with about 30 percent of the increase in gross domestic product (GDP) from 1947 to 1992.[6] This contribution takes a number of forms. The most obvious is an innovation that serves a need not previously served by any other product or service. Not quite so obvious is the innovation that serves a need previously satisfied, but now in a superior way. Less obvious is the innovation that reduces the cost and/or increases the quality of a product or service. (An example is the accumulation of innovations that reduced the cost of long-distance telephone service.)

The Advantages of Small and Large Firms in Innovation[7]

The relationship between firm size and the capacity for innovation has been widely studied for larger firms.[8] Yet fewer than 0.3 percent of all U.S. firms with employees—fewer than 14,000 firms—have more than 500 employees.[9] The remaining 99.7 percent are considered small. These smaller firms account for 53 percent of private sector employment, 47 percent of private sector payroll, and 52 percent of sales. This large part of the U.S. private sector has not been studied much in traditional innovation research. The omission becomes more significant when one considers the number of small firm innovations.

Small Firm Innovators

Small firms have certain advantages in innovation. To begin with, the incentives are greater: small firms may have the potential to create or capture an entire industry, while large firms are more often protecting a market position. Researchers have documented the strong motivation of the inventor-entrepreneur: financial rewards are reinforced by the desire for independence, the creative drive, and the need for recognized achievement. Dedicated innovators are not as easily blocked by major obstacles as are professional managers.[10]

There is also a marked difference in both opportunity and incentive between a worker in a small firm and one in a large firm. Small firms tend to be not just

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[6] U.S. Council of Economic Advisers, *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, February 1994), 44.

[7] For a detailed list of the advantages and disadvantages of large and small firms in innovation, see Roy Rothwell, "Technology-Based Small Firms and Regional Innovation Potential: The Role of Public Procurement," *Journal of Public Policy*, 4, no. 4 (November 1984), 307–332.

[8] See, for example, Morton I. Kamien and Nancy L. Schwartz, *Market Structure and Innovation* (New York: Cambridge University Press, 1982).

[9] Calculated by the U.S. Small Business Administration, Office of Advocacy, from data provided by the U.S. Department of Commerce, Bureau of the Census. Of 5,051,025 firms in the data base for 1991, 13,977 had 500 or more employees.

[10] James Brian Quinn, "Managing Innovation: Controlled Chaos," *Harvard Business Review*, 63, no. 3 (May–June 1985), 73–84.

R&D risks by taking on more projects, either through alternative approaches to the same goal or by starting entirely new projects. And because large firms tend to produce a greater variety of products, it is more likely that any unexpected results of their R&D efforts will be useful to them. Also because of their resources, it is easier for them to protect their patents and other intellectual property through lawsuits and other legal actions.

More large firms are attempting to capture some of the advantages of small firms, as well as retain the advantages of a larger size, by emphasizing relative independence for units charged with research, development, and/or innovation.[16]

Empirical Evidence

Since its creation in 1976, the SBA's Office of Advocacy has completed a number of research studies on innovation. These studies, drawing on a series of extensive surveys, either confirm or shed new light on the value of innovation by small business.

Importance of Small Firm Innovations

Everyone knows of some important innovations that were brought to market by small firms (Table 3.1). On a more comprehensive scale, a study done for the SBA identified a total of 8,074 innovations in 362 industries from 46 technology, engineering, and trade journals.[17] Small firms were estimated to be responsible for 55 percent of the innovations, which included innovations of different levels of significance. New firms have been particularly important in commercializing new technologies in the United States, in contrast to other countries, over the postwar period.[18]

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[16] U.S. Congress, Office of Technology Assessment, *Technology and the American Economic Transition: Choices for the Future* (Washington, D.C.: U.S. Government Printing Office, May 1988), 179.

[17] Industries are identified in this study by their four-digit Standard Industrial Classification (SIC) code. Seventy-eight percent of the industries were in manufacturing. Keith L. Edwards and Theodore J. Gordon, *Characterization of Innovations Introduced on the U.S. Market in 1982*, report no. PB84–212067, prepared by the Futures Group for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, March 1984).

[18] David C. Mowery and Nathan Rosenberg, "The U.S. National Innovation System" in Richard R. Nelson, ed., *National Innovation Systems: A Comparative Analysis* (New York: Oxford University Press, 1993), 29. The small firm share of innovation is lower in other industrialized nations. For example, British firms with fewer than 500 employees were responsible for only 21 percent of 2,293 important innovations introduced during 1945–1980 in industries constituting about half of British manufacturing. See J. Townsend et al., "Science and Technology Indicators for the UK: Innovations in Britain Since 1945" (University of Sussex Science Policy Research Unit, Occasional Paper 16, 1982) cited in Christopher Freeman, *The Economics of Industrial Innovation* (Cambridge, Mass.: MIT Press, 1986), 139–140.

cance: (1) first of its type, (2) a significant improvement of existing technology, or (3) a modest improvement of an existing product. Small firms were found to produce 1.91 times as many first-of-type innovations, 1.92 times as many significant improvements, and 2.46 times as many modest improvements per employee as large firms.

Research and Development

In 1993, the United States spent an estimated $161 billion on research and development. Of this $161 billion, government programs supported 42 percent; industry, 52 percent; and universities, colleges, and other nonprofit institutions accounted for the rest. The industry sector performed 70 percent of the nation's R&D, receiving more R&D funds from other sectors than it disbursed.[21]

Large firms in general are more likely to perform R&D than the average small firm. A survey of 284 small and 32 large industrial firms in upstate New York in 1985 found that firms with at least one employee devoted full-time to R&D comprised:

- 28 percent of the firms with fewer than 50 employees,
- 60 percent of the firms with 50 to 99 employees,
- 69 percent of the firms with 100 to 499 employees, and
- 94 percent of the firms with 500 or more employees.[22]

The Bureau of the Census annually surveys the performance of R&D by industry for the National Science Foundation (Table 3.2).[23] In 1991, the average small firm in the survey had 59 employees and the average large firm had 6,811 employees. The average R&D effort in large firms had 90 times as many nonfederal R&D dollars, and 269 times as many federal dollars as in small firms. For every large R&D firm, there were 10 small ones performing R&D. For every large firm with federal R&D funds, there were seven small ones. Thirty percent of the 361 firms conducting basic research were small.

The small R&D firms were quite research-intensive. The percentages of domestic employees that were R&D scientists and engineers were 6.41 percent in small R&D firms and 4.05 percent in large firms. R&D funds as a percentage of domestic net sales were 4.25 percent for small firms and 3.89 per-

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[21] U.S. National Science Board, *Science & Engineering Indicators—1993*, NSB 93–1 (Washington, D.C.: U.S. Government Printing Office, December 1993), appendix table 4–4, 333.

[22] Most of these industrial firms (282 of 316) were in manufacturing. Albert N. Link and Barry Bozeman, *Firm Size and Innovative Activity: A Further Examination*, report no. PB89–134365, prepared by Albert N. Link and Barry Bozeman for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, September 1987).

[23] These data are for 24,389 firms with 16 million domestic employees. About two-thirds of the firms (15,399) are primarily in manufacturing. There were employment thresholds for inclusion in the survey that varied by industry. These thresholds ranged from 5 to 250 employees, depending on the proportion of R&D accounted for by the larger firms. The average threshold was about 100 employees. National manufacturing extrapolations of the Link and Bozeman results are 15,437 firms with 100 or more employees and 100,000 manufacturing firms of all sizes performing R&D.

cent for large R&D firms. Small firms performed R&D with 57 percent of the funds per R&D scientist or engineer, compared to larger firms, which may be partly because of salary differentials and the amount of capital equipment necessary for certain kinds of R&D.

A study of intellectual property also found the small technological enterprise to be more research-intensive than the large technological enterprise.[24] The median large enterprise with intellectual property had R&D expenses that were 5 percent or less of sales, while the median small enterprise responding had R&D expenses that were 11 percent or more of sales. Fourteen percent of the small enterprises had R&D expenses that were more than 40 percent of sales, compared to none of the large enterprises.

In the NSF data, there were 1,500 firms in 1991 performing $25 billion worth of R&D for the federal government (Table 3.2). Small firms with fewer than 500 employees received only 3.67 percent of these funds, compared to their 10.21-percent share of nonfederal funds. In other words, the small firm percentage share of nonfederal funds was about 2.8 times their percentage share of federal funds. Large firms received 26 percent of their research and development dollars from the federal government and were more dependent on federal R&D dollars than small firms, which received only 11 percent of their R&D funds from the federal government. Federal funds per R&D scientist or engineer were more than four times as great in large firms as in small firms.

A small firm R&D dollar is more likely to be spent on research (especially basic research) than a large firm R&D dollar. The share of R&D funds used for basic research was 5.79 percent in small firms, compared to 4.05 percent in large firms (Table 3.3).[25] Small firms spent 27 percent of their R&D funds on applied research; large firms spent 22 percent.

The comparison is more striking when only federal funds are considered. A federal R&D dollar to a small firm was more than four times as likely to be used for basic research as a federal R&D dollar to a large firm (16.48 percent vs. 3.68 percent), and more than twice as likely to be used for applied research (45 percent vs. 17 percent). Consequently, small firms were only half as likely to invest their federal R&D dollars in development (38 percent) as large firms (80 percent).

The limited resources of the small firm may mean that it can perform the research stage more fully than the more expensive later stages of innovation. If small firms find development too expensive, or choose to specialize in research, they may sell or license the research results to a large firm. The research may even have been done for a large firm in the first place: 16 percent of large firms contract out some R&D. Large firm R&D dollars contracted out are 6 percent of total large firm nonfederal R&D (Table 3.2). By contrast, only 1 percent of small firms contract out 2 percent of their nonfederal R&D.

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[24] Mary Seyer Koen, *Business Intellectual Property Protection*, report no. PB92–151703, prepared by MO–SCI Corporation for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, December 1991).

[25] Derived from Table B–6 in National Science Foundation, *Research and Development in Industry: 1990, Detailed Statistical Tables*, NSF 94–304 (Washington, D.C., 1993), 105–107.

Eleven percent of the small firms and 20 percent of the large firms patented virtually all of their discoveries with commercial potential. Sixteen percent of the small firms and 20 percent of the large firms patented only major discoveries or discoveries in only a small proportion of their lines of business.[26]

A study of firms with intellectual property found that patents were ranked as the most important form of intellectual property protection for small enterprises, followed closely by trade secrets. Further down in importance were copyrights, followed closely by trademarks. The pattern was basically similar for large enterprises, except that copyrights were considerably less important than trademarks.[27]

Outside Relationships

Firms can augment their innovative capabilities with relationships with other organizations and individuals. These relationships are of many kinds, including joint ventures, R&D limited partnerships, the licensing of technology, contracts, and the use of professors as consultants and students as research assistants.

Technology Alliances

The intellectual property study defined technology alliances as licenses, joint ventures, or contracts. Fifty-nine percent of small enterprises with intellectual property used technology alliances in a five-year period (1985–1989), compared to 89 percent of their large counterparts. For both small and large enterprises, technology alliances in general were most likely during development and least likely during basic research. Large enterprises were more likely than small enterprises to have used each kind of technology alliance at each stage of activity, including the applied research, testing and evaluation, manufacturing, and marketing stages.

In technology alliances, small firms deal with other small firms (63 percent) as much as they deal with large firms (61 percent). Large enterprises with a technology alliance, on the other hand, are more likely to have a relationship with another large enterprise (84 percent) than with a small enterprise (66 percent).

Large enterprises are more likely to license technology to others: 34 percent of the small enterprises with intellectual property and 73 percent of the large enterprises granted a license during the five-year period. The average large enterprise licensed a smaller share (60 percent) of its licensing to domestically owned organizations than did the average small enterprise (75 percent).

For both small and large enterprises the greatest portion of licenses granted (37 percent and 48 percent respectively) primarily involved patents, followed by trade secrets in large enterprises and copyrights in small enterprises, where trade secrets were a close third.

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[26] John A. Hansen, *Utilization of New Data for the Assessment of the Level of Innovation in Small American Manufacturing Firms*, report no. PB90–127291, prepared by State University of New York at Fredonia for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, 1989).

[27] Koen, *Business Intellectual Property Protection.*

total R&D expenditures for 1982–1987 was estimated to average 26 percent for both small and large firms, but only 14 percent for firms not involved with a university, again both large and small. The estimated rates of return on R&D were higher for firms with a university relationship—30 percent for large firms and 44 percent for small firms.

Government Involvement in Innovation

Very often the net benefits of an innovation to society are greater than the benefits to the innovating firm because of externalities, leading to government interest and involvement in innovation above and beyond the private incentives.

Social Benefits of Innovation

Innovation produces economic benefits and costs for the innovating firm as well as external benefits and costs for its customers, suppliers, competitors, and others. The net benefits to society from investment in innovation—the social return—differ from the net benefits to the innovator—the private return, or profit. The social benefits of an innovation may include lower prices and/or increased quality for the users of an innovation, more demand for inputs from suppliers to the innovator, and benefits to others indirectly affected (for example, reduced pollution). Profits lost by competitors are deducted from social benefits in calculating net social benefits, as are the costs of any unsuccessful R&D by competitors of the innovation, and costs to others indirectly affected.

A series of studies for the National Science Foundation indicated that the social rate of return on innovation is generally greater than the private rate of return; subsequent research for the SBA suggested that this is also true for small firm innovations.[31] Differences between the social and private rates of return may vary with the size of the innovating firm for several reasons. Small firms do not have the same ability as large firms to prevent another firm from capitalizing on a related innovation, even when patent protection has not been violated. The large firm, with its greater resources, can also defend itself more easily against patent infringement. It also is more likely to own related patents, which would deter an imitator.

Large follower firms can often move into a market in less time than originally required by a small innovator, because of greater resources that can be brought to bear and/or a clearer idea of the most productive direction for R&D after the innovation has been introduced.[32]

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[31] Anthony A. Romeo and John Rapoport, *Social Versus Private Returns to the Innovations by Small Firms Compared to Large Firms*, report no. PB85–196996, prepared by the University of Connecticut for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, July 1984). Cited in the U.S. National Science Board, *Science Indicators: The 1985 Report* (Washington, D.C.: U.S. Government Printing Office, November 1985), 84.

[32] W.L. Baldwin and G.L. Childs, "The Fast Second and Rivalry in Research and Development," *Southern Economic Journal*, 36, no. 1 (July 1969), 18–24.

Several more direct approaches to stimulating innovation are currently being used at different levels of government. Many of these efforts complement each other and create a synergy which increases both innovation and economic growth. For example, governments have tried to generate an important innovation input—research and development—by creating private incentives for performing R&D (such as tax credits) and by making direct expenditures for R&D. Another approach is stimulating the production of commercial products from the transfer of already existing research or technologies. Other forms of government involvement include startup capital and financing programs, antitrust reform or exemptions, and high-tech incubators established by state and local governments to encourage development of specific industries.

Intellectual property laws can encourage inventors to develop or license their ideas to others by reducing the risks of damage from infringement. Cooperation in international conventions on intellectual property encourages these inventors to export products and license technology abroad.

Research and Experimentation Tax Credit

The federal government has several programs designed to stimulate innovation. One current incentive is the research and experimentation (R&E) tax credit, which was enacted as part of the Economic Recovery Tax Act of 1981. Taxpayers were allowed a tax credit for additional investments in qualified research that had been incurred in carrying on a trade or business. The purpose of the incremental structure was to encourage research that would not otherwise have been conducted. The credit was equal to 25 percent of the amount by which the taxpayer's qualified expenditures exceeded a base amount. The base amount equaled the greater of 50 percent of current year expenditures or the average of the qualifying expenditures incurred over the three immediately preceding years.

The Tax Reform Act of 1986 reduced the credit to 20 percent, reduced the qualifying expenditures from "research and development" to "research and experimentation," established a separate 20-percent credit for university basic research, and extended the credit temporarily. In response to the SBA's Office of Advocacy and other interested parties, the Omnibus Budget Reconciliation Act of 1989 made the credit available for the first time to startup firms and to firms exploring new lines of business. The base amount computation was also changed by calculating a ratio of R&E expenditures to sales over a historic period and applying that ratio to recent sales. Companies that had no tax liability in the year the credit was earned could carry the credit back three years and forward 15 years. However, this would be of limited value if the firm took a long time to earn a profit.

The Omnibus Budget Reconciliation Act of 1993 extended the R&E tax credit through June 30, 1995, and retroactive to July 1, 1992. In fact, since the R&E credit was enacted in 1981, it has been extended only on a temporary basis, often during the final hours of budget negotiations. The lack of a permanent R&E credit reduces its effectiveness because extended research projects require long-term investments. Many business owners and policy-

capital to support their research.[38] Without government R&D contracts during the initial years, many small high-technology companies could never have made their contribution to employment and growth in the U.S. economy. This does not imply that such beneficial results should necessarily be a primary goal of government R&D procurement policy, but it does underline the importance of a procurement policy that overall is neutral toward different kinds of contract performers.

Small firm participation in federal R&D procurement, however, is less than its participation in private sector R&D activity. The small firm share of federal R&D expenditures in FY 1991 was 3.7 percent, which was little more than one-third of the small firm share of nonfederal R&D funds, at 10.2 percent (Table 3.2). The small firm share of R&D prime contract dollars was 6.4 percent in FY 1986, which was little more than one-third of its 18.4 percent of total private sector sales in the industries to which R&D contracts went in that year.[39]

Why is the small firm share of private sector activity greater than its share of federal R&D activity? Are there barriers to small firm participation in government R&D procurement? One possible barrier is the size of government contracts. A study conducted for the SBA of new definitive contracts showed that dollars in R&D contracts initially below $1 million were more than eight times as likely to go to small firms as dollars in contracts initially above $1 million. Yet two-thirds of R&D dollars in new definitive contracts were in contracts initially over $1 million, and 43 percent were in contracts initially above $5 million.[40] Two other kinds of barriers to small firm participation in federal R&D procurement, in addition to contract size, are the fixed costs to business of learning about and responding to R&D procurements, and the perceptions of government personnel about risks in dealing with small firms.

The Small Business Innovation Research Program

Creation of the SBIR Program

Analysis of the barriers to small firm participation in federal R&D procurement formed the basis for the design of the Small Business Innovation Re-

[38] Judith H. Obermayer, *Case Studies Examining the Role of Government R&D Contract Funding in the Early History of High Technology Companies*, report no. PB82–190869, prepared by the Research and Planning Institute for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, July 1980).

[39] Industries were weighted according to the R&D procurement dollars flowing to each. Jack Faucett, *Development of Data for a More Recent Year of Federal Procurement*, report no. PB92–101922, prepared by Jack Faucett Associates for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, October 1989), ES–4. The procurement definition of R&D is broader than the NSF definition.

[40] Washington Management Group, *Federal Procurement Cost Growth by Performer and Contract Size, Type, and Method, FY 1979–1982*, report no. PB86–168598, prepared by Washington Management Group for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, March 1984), Appendix Tables 435–441.

of the vendors—that is, the increased competitiveness in the procurement process, due to the greater willingness of small firms to participate in a procurement that has been set aside for small business.

Federal procurement of research and development services already has an allowed cost—the independent research and development and bid and proposal expense (IR&D/B&P). The IR&D/B&P provisions allow firms with federal technical contracts to charge to the government not only the bid and proposal preparation cost, but also part of the cost for approved independent research and development. Successful independent research and development can lead to additional government contracts. Thus, technical contractors with the federal government—predominantly larger firms—have an advantage over new competitors, which must fund their proposals and the supporting research from retained earnings or other sources. It has been estimated that large business vendors claim about a billion dollars a year more than small firms in IR&D costs and another billion in B&P costs.[42] The 100 or so major defense contractors account for an estimated 97 percent of all IR&D.[43]

The result is that IR&D/B&P may cost the government twice: once in the extra permitted charges and again in the reduction of competition that results from the extra strengthening of existing vendors. This does not mean that the IR&D/B&P program is uneconomical or improper, but only that it has functioned as a barrier to entry. By providing a source of funds for small firms, the SBIR program has improved the competitiveness of the R&D contract award process.

How the SBIR Program Works

Government agencies with extramural R&D obligations over $100 million annually participate in Small Business Innovation Research.[44] There are now 11 agencies in the program: the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, and Transportation, the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Science Foundation, and the Nuclear Regulatory Commission. Each agency sets aside a small percentage of its external R&D budget for the program. The percentage was 1.25 percent in FY 1992 and will increase from 1.5 percent in FY 1993 and FY 1994, to 2.0 percent in FY 1995 and FY 1996, and 2.5 percent thereafter.

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[42] D.G. Soergel, *An Estimate of New Business Expenses Which Are Paid and Subsidized by U.S. Taxpayers*, report no. PB81–208027, prepared for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, 1981).

[43] U.S. National Science Board, *Science & Engineering Indicators—1993*, NSB 93–1 (Washington, D.C.: U.S. Government Printing Office, December 1993), 114, footnote 51. Appendix table 4–22 on page 360 shows that in fiscal year 1992, the total IR&D reimbursed by DOD and NASA was $2,331 million. This was 7.7 percent of the R&D performed by industry for these two agencies. There is no evidence that IR&D is any more likely to be subcontracted than R&D in general.

[44] The original legislation was the Small Business Innovation Development Act of 1982 (P.L. 97–219), which began the governmentwide program in FY 1983. The most recent extension of the program was in P.L. 102–564, where Title I is the Small Business Innovation Research Program Reauthorization Act of 1992, which expanded the size of the program and reauthorized it for an additional seven years, through FY 2000.

Small firms are providing unique ideas and demonstrating advanced capabilities in the service of their nation.

Evaluating the Results

The General Accounting Office (GAO) has issued a number of reports on the SBIR program. In 1989, GAO addressed research quality: "Overall, agency project officers assessed 29 percent of the SBIR projects as being of higher quality than other research under their responsibility and half as being of the same quality. . . . At all agencies . . . project officers rated SBIR projects as more likely than other research to lead to inventing and commercializing new products . . . most agencies reported that SBIR programs had developed new research areas, placed more emphasis on the application of research results, and led to wider use of small businesses as research performers." [48]

In FY 1992, small firms were awarded 8.5 percent of federal procurement of research and development in contract actions over $25,000. This is the highest percentage awarded small business in the first 14 years of records at the Federal Procurement Data Center. The phasing in of the governmentwide Small Business Innovation Research program in FY 1983 may have provided the impetus for growth in the small business share of contract research and development. The performance of small business in this respect has improved even more than the dollar amounts immediately involved in SBIR contracts would indicate.

One of the primary goals of SBIR is, of course, commercialization of the results. In 1990, the SBA published a study of the degree to which commercialization had occurred in SBIR.[49] A total of 834 projects that had received funding in the first three years of SBIR were surveyed over a three-year period. Each project was assessed approximately four years after the receipt of a Phase II award. To see how the degree of commercialization might increase over time, follow-up surveys of a subsample of the projects were conducted during the second and third years of the study. The study found that 12 percent of projects were commercialized four years after receiving Phase II funding, while another 6 percent of projects seemed likely to be commercialized. The study predicted that the rate of commercialization may reach 34 percent 10 years after receiving Phase II awards. About one-third of awardees needed additional capital for commercialization, averaging about $750,000.

The GAO also issued a report on this aspect of the program. In the first half of 1991, GAO surveyed all Phase II awards made during the first four years of these awards, FY 1984 through FY 1987. The average award was thus

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[48] U.S. General Accounting Office, *Federal Research: Assessment of Small Business Innovation Research Programs* (RCED–89–39, January 1989), 3.

[49] U.S. Small Business Administration, *Results of Three-Year Commercialization Study of the SBIR Program* (Washington, DC; U.S. Government Printing Office, 1990). At the time of the Phase I award, the median company was 6 years old and had 15 employees. Awardees tended somewhat to use universities and/or subcontractors: 31 percent used university personnel or facilities, 17 percent used a subcontractor, and another 9 percent used both.

with intellectual property are less likely than large firms to have infringement problems, but when they occur, such problems are more severe for a small firm, because of the high cost of legal proceedings. Licenses granted are a more important source of operating income for small enterprises.

The estimated rates of return on R&D are higher for firms with a university relationship. Compared with large firms, small firms appear to be able to transfer knowledge gained from external research associations more effectively, and thus to increase the returns to their total R&D activities.

Innovating businesses capture less than half of the social returns to their R&D. Government R&D procurement plays a particularly important role in new, small high-technology firms, which usually have limited profits and capital to support their research. The small firm share of R&D prime contract dollars is little more than one-third of its share of total private sector sales in the industries to which R&D contracts go. Dollars in new definitive R&D contracts initially below $1 million are more than eight times as likely to go to small firms as dollars in contracts initially above $1 million, yet two-thirds of such R&D dollars are in contracts initially over $1 million.

FY 1992 was the 10th year of the SBIR program. In the first 10 years of the program, over $3 billion has been awarded to small firms for a total of 18,824 projects. The program has been very competitive: an average of eight proposals has been received for every Phase I award. In one study, 32 percent of the small enterprises with intellectual property had submitted SBIR proposals and 22 percent had received awards.

In FY 1992, small firms were awarded 8.5 percent of federal procurement of research and development in contract actions over $25,000. This is the highest percentage awarded small business in the first 14 years of the Federal Procurement Data Center. The phasing in of SBIR may have provided the impetus for growth in the small business share of federal contracts in research and development. The performance of small business in this respect has improved even more than the dollar amounts immediately involved in SBIR contracts would indicate.

Chapter 4

Defense Diversification and Small Business

Synopsis

The end of the Cold War has allowed the United States to shift a large portion of its productive resources away from national security purposes. In 1993, defense spending accounted for 6.5 percent of the U.S. gross domestic product; by 1997 it is expected to drop to about 3.2 percent. Also by 1997, defense-related jobs are projected to total 4.5 million, well below their 1987 high of 7.2 million.

The currently programmed reductions in defense spending are more gradual and smaller, relative to the size of the total economy, than the cutbacks that followed World War II and the Korean and Vietnam wars.

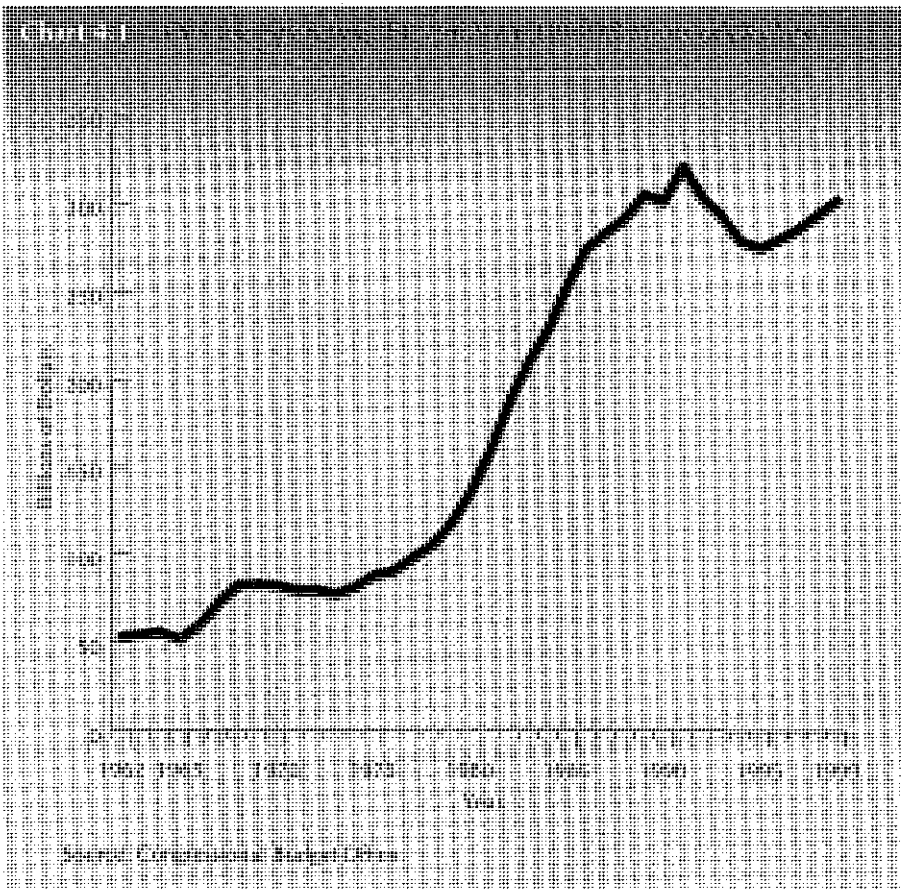
Nationally, about one-half of total unemployment attributable to defense cuts will represent job losses in small businesses. Some small firms will lose defense-related sales to the government or to defense prime contractors. Most small firm job losses will occur as the indirect effect of losing business servicing the government and private industry defense workers whose jobs will be eliminated.

The loss of small business jobs will be concentrated geographically because most defense spending is heavily concentrated in comparatively few local economies.

The ability of small and large businesses to adapt to an economy with lower levels of defense spending will be affected by many factors. To maintain profitability, all firms dependent on defense work will either have to strengthen their position in the shrinking market for defense goods or find new nondefense markets.

Small defense-related businesses face several disadvantages because of their size. They have limited personnel who can devote time to creating new products and cultivating new markets. They have limited experience in transferring their defense technologies to commercial uses and less time and money to accomplish such transfers: and they have little or no experience in selling to nondefense customers and few if any deals with private capital market institutions.

A wide array of federal, state, local, and private programs have been created to ease the transition away from defense-related activities. Few focus on the special needs of smaller firms, but opportunities for assistance are available. Small firms will need to pursue these opportunities aggressively.



addition, small firms obtained most of their subcontracting revenues from the major procurement programs of DOD ($18.1 billion in FY 1992).[1]

Small firms will also feel the indirect effects of lower defense spending on the national and local economies in which they operate. For example, small businesses provide goods and services to private-sector and government workers, many of whom will lose their jobs. These "ripple effects" of defense reductions must also be taken into account.

Reductions in defense spending affect the national economy as part of total reductions in federal spending and the federal deficit. These in turn lower interest rates, the amount of private investment spending, and the overall level of wages in the economy. Most analysts agree that the macroeconomic effects of changes in the planned levels of defense spending will have a minimal effect on the economy. The shift of resources away from the defense industries could lead to permanently higher levels of income and con-

[1] See Appendix C.

Most recent forecasts that consider the total mix of changes in defense and nondefense spending and tax policy, as well as monetary and trade policies, are optimistic regarding the future of the U.S. economy. The CBO predicts that the programmed reductions in defense spending, when combined with all the other spending and revenue decisions made by the Congress and the President, and the expected growth of the private sector and of U.S. trading partners, will result in real GDP growth at an annual rate of 2.7 percent through 1998.[3]

Impacts of Defense Adjustments on Specific Industries

While the effects of changes in defense spending on the national economy may be negligible, they will have profound effects in particular industries and areas: the greater the defense-related share of industry revenues, the greater the expected impact of defense reductions.

For most industries, the effects of the defense spending reductions will be negligible. The CBO estimates that of the 420 industries defined in the 1987 *Standard Industrial Classification Manual*, 362 (86 percent) will experience a decrease in shipments of 1 percent or less. Of the remaining 58 industries, only six would suffer as much as a 5-percent decrease. Employment change associated with the planned defense spending cuts will be concentrated in a small number of industries (Table 4.1).

State and Local Impacts of Defense Diversification

Reductions in defense spending will have their greatest impact in the small number of states and localities where defense industries play a greater than average role in providing jobs and generating income. The effects on a local economy of losing a military installation or defense contractor are similar to the effects of losing a major nondefense firm or government employer.

Measured in terms of the absolute dollar levels of defense spending, California leads all states. Total direct and indirect defense spending there during 1992 was estimated at $86.7 billion. Texas, Virginia, New York, and Florida were also states in which major defense activities occurred (Table 4.2).

The defense industry's share of the state's total output is a good barometer of the impact of defense reductions on a state's economy. The defense industry does not play an equal role in all of the states.[4]

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[3] U.S. Congress, Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1995–1999* (Washington D.C.: U.S. Government Printing Office, January 1994).

[4] The choice of using a measure of the absolute or relative effects of defense spending on a state's economy is not trivial. New York moves from thirty-ninth to fourth place, and Texas from twenty-second to second place using the absolute, rather than the relative, impact measure. Alaska goes from thirty-seventh to first, and Hawaii from twenty-eighth to second place when a measure of relative impact is employed. In Alaska and Hawaii, defense spending has the largest relative impact. California, Virginia, and Maryland are the states where defense changes have both a large absolute and large relative impact on the state's economy; in these states small businesses will face especially difficult adjustment problems.

Table 4.2 *Impact of Defense Spending on States*

Ten Top States in Total Direct and Indirect Defense Spending	Billions of Dollars
California	86.7
Texas	36.8
Virginia	33.9
New York	23.0
Florida	21.7
Pennsylvania	19.2
Ohio	17.6
Georgia	15.6
Maryland	15.4
Massachusetts	14.7
Top Ten States in Defense Spending as a Percentage of Total Output	Percent
Alaska	12.2
Hawaii	11.9
Virginia	11.4
California	9.5
Mississippi	8.1
Washington	8.0
Maryland	7.8
South Carolina	7.1
New Mexico	7.0
Maine	6.7

Source: U.S. Congress, Congressional Budget Office, *Effects of Alternative Defense Budgets on Employment,* CBO papers (Washington, D.C.: Congressional Budget Office, April 1993), Table 9, 20–21.

According to one estimate, for the United States over the decade 1991–2001, the change in federal spending priorities away from the defense sector will result in a reduction of 1.7 percent of total 1991 employment (Table 4.3).[6] This job loss does not fall equally on the 319 metropolitan statistical areas (MSAs) described by federal data sources.[7] The MSAs displayed in Table 4.3 are those in which the employment impact of defense cuts exceeds three times the national average.

These severely affected communities are in both large and small cities and suburbs, in large and small states, and in all regions of the country. All

[6] This discussion is drawn from NPA Data Services, Inc., *Cuts in Defense Jobs in U.S. Counties, Metropolitan Areas and States: 1991–2001* (Washington, D.C., 1992).

[7] A Metropolitan Statistical Area is a coherent geographic unit consisting of a group of counties that has a large population center with at least 50,000 persons and a high degree of economic and social integration.

are now concentrated. Fifty-eight percent of all small business job losses are projected for 11 states with more than 30,000 small business defense jobs.

The projected 438,800 jobs constitute less than 1 percent of the total 65.7 million small business jobs in the United States. But at the local level, some percentages will be quite high.

The direct job losses to small business in the defense industries are only a part, and by all indications only a small part, of all small business job losses that actually will result from defense reductions. The large impact will occur through the indirect losses of business because of the job and income losses of military and civilian employees of DOD and of large and small business defense contractors.

Indirect Job Losses

The indirect effects of defense reductions on small firms will exceed the direct effects. The overall direct effects include projected losses between 1992 and 1999 of 1.2 million defense-related jobs in the private sector (438,800 in small businesses) and 530,000 military and civilian government jobs. The indirect effects will be felt by owners of restaurants and other retail stores as local military bases are closed and major military acquisitions are cancelled.

The ultimate number of jobs lost from any decline in defense spending must be counted over a period of time following the initial reductions. When jobs are eliminated, at least some of the workers become unemployed and their spending power is reduced. The resulting expenditure reductions flow through the economy in successive rounds of business and consumer spending reductions.

Estimating the magnitude of indirect job losses and the share that will fall on small firms is very difficult. While small businesses account for about 36 percent of all jobs in the defense industries, they constitute about 60 percent of jobs in the total economy.

NPA Data Services estimates that 720,000 small business jobs will be lost because of the indirect effects of defense reductions.

The Needs of Small Firms for Adjustment Assistance

For businesses that typically cater to large, commercial, consumer-oriented firms, quality is important—but so are other product characteristics such as price, serviceability, and delivery time. Firms that produce for the defense sector often operate with little consideration for cost, with requirements for 100-percent reliability, and with long lead times. Nearly all businesses dependent on defense work will be adversely affected by the reduction in defense spending. Their survival will require their becoming successful with nondefense customers. Some customers will be other federal and governmental agencies and others will be commercial clients. Unfamiliarity with products and production techniques and standards, methods of contracting, financial arrangements, and the very nature of nondefense markets may prove to be insurmountable barriers to some firms. Others will rise to the challenges, prosper, and grow.

Mississippi	31.1	7.4	23.6	−3.2	−42.9	4.2
Missouri	80.8	18.5	22.9	−8.6	−46.3	9.9
Montana	3.5	3.0	85.2	−1.1	−37.6	1.9
Nebraska	9.0	6.7	74.4	−2.6	−38.5	4.1
Nevada	5.7	3.2	55.2	−1.2	−36.9	2.0
New Hampshire	15.3	5.0	32.9	−2.3	−45.0	2.8
New Jersey	88.2	37.2	42.2	−15.7	−42.1	21.5
New Mexico	16.4	10.8	65.8	−4.1	−37.7	6.7
New York	173.8	54.6	31.4	−24.1	−44.1	30.5
North Carolina	46.1	18.9	41.0	−7.1	−37.5	11.8
North Dakota	3.4	2.5	72.3	−0.9	−38.1	1.5
Ohio	124.1	51.8	41.7	−22.5	−43.4	29.3
Oklahoma	26.8	16.5	61.4	−6.2	−37.4	10.3
Oregon	14.6	9.4	64.1	−4.0	−43.2	5.3
Pennsylvania	115.8	47.0	40.6	−20.0	−42.5	27.0
Rhode Island	12.1	4.7	38.9	−2.0	−43.0	2.7
South Carolina	25.4	16.1	63.5	−6.0	−37.3	10.1
South Dakota	3.1	2.6	85.6	−0.9	−34.4	1.7
Tennessee	32.4	15.4	47.5	−6.4	−41.8	9.0
Texas	190.2	59.9	31.5	−25.5	−42.5	34.4
Utah	21.7	9.1	42.1	−3.7	−40.5	5.4
Vermont	5.9	2.2	36.5	−1.0	−44.9	1.2
Virginia	145.9	70.8	48.5	−29.2	−41.2	41.6
Washington	76.1	22.1	29.1	−8.3	−37.7	13.8
West Virginia	10.7	8.8	82.6	−3.6	−41.2	5.2
Wisconsin	36.1	18.6	51.4	−8.9	−48.2	9.6
Wyoming	3.4	2.2	64.8	−0.8	−35.6	1.4
Total	**2,925.0**	**1,053.0**	**36.0**	**−438.8**	**−41.7**	**614.2**

Source: Nestor Terleckyj, *Estimating the Local Effects of Defense Cuts on Small Business: 1992-1999*, report no. PB95–100285, prepared by NPA Data Services, Inc., for the U.S. Small Business Administration, Office of Advocacy, (Springfield, Va.: National Technical Information Service, 1994), 13.

both military and nonmilitary experience and would invest in private defense companies attempting to convert to nondefense lines of business.

Such a new entity offers several advantages: it multiplies the impact of government funds by requiring private investment in the newly created entity; taxpayers could receive some return on their investment; and private-sector managers—not the government—would be selecting the companies and technologies that are most likely to be commercially viable. Investments by this new entity could be targeted at small and medium-sized firms seeking to convert their defense capability to nondefense markets.

Public and Private Sector Responses to Defense Diversification Needs

Different philosophies and strategies are pursued by various levels of government as they try to mitigate the negative effects of reductions in defense spending. One view holds that assistance should focus on workers. Another view maintains that helping businesses adjust and survive is the most effective way to provide jobs. Still another position argues that public funds should be allocated to communities to ease the transition away from dependence on the defense sector. There is no compelling evidence that any one form of assistance is consistently superior.[13]

Despite these differences in ideas, a consensus among governments appears to have emerged, and the efforts to lessen the economic and social costs of defense adjustments have consistent elements. There is recognition that the private sector is the ultimate source of resolution to the problems associated with defense adjustments and there is increasing reliance on private-public partnerships to stimulate and nurture the private sector.

The Federal Government

Helping veterans, businesses, and communities adjust to the effects of reduced defense spending is not new to the federal government—some programs go back as far as the Revolutionary War. Current actions by the federal government in response to the end of the Cold War are consistent with earlier precedents.

Several general programs of the federal government can provide various types of assistance to small firms that are attempting to move from defense to nondefense markets. Historically, these programs were not created or designed to address any problems specifically associated with defense changes. They were designed to assist communities and businesses adversely affected by environmental regulations, international trade, etc. Small businesses ad-

[13] For detailed descriptions of the full array of available federal programs see: Edward Knight et al., *Economic Adjustment Assistance to Communities and Workers Affected by Defense Cutbacks*, CRS Report No. 90–120E (Washington, D.C.: Congressional Research Service, 1990); and Edward Knight, *Federal Economic Aid to Communities, Workers, and Businesses Affected by Defense Cuts*, CRS Report No. 91–54E (Washington, D.C.: Congressional Research Service, 1991).

mercial markets while maintaining the nation's defense-related technical and industrial base. DDLP is a two-year pilot project under which about 2,500 loans averaging $500,000 each will be made. Small manufacturers who have been a prime contractor or subcontractor to either DOD or to the Department of Energy's defense-related programs, and have a plan to use the loan proceeds to diversify their revenue sources are eligible. The loan proceeds may be used for fixed capital acquisition or for operating purposes. The SBA will use its existing 7(a) or 504 programs to make and service the loans. Specific information is available at local SBA offices or through the Small Business Answer Desk at (800) 8–ASK–SBA.

A new federal government office has been opened to provide "one-stop shopping" for companies and workers adapting to defense cutbacks. The Office of Economic Conversion Information is a collaborative effort of the Departments of Commerce and Defense that acts as a clearinghouse for information on all federal programs. The office assists people coping with base closings who are searching for funds from federal grant programs; those who are investigating technologies that might be substituted for defense-related work; and workers in search of assistance because they have permanently lost their jobs. Callers to a toll-free line—(800) 345–1222—receive referrals to the multitude of government programs and agencies designed to help communities, businesses, and individuals cope with the setbacks posed by the change in national spending priorities.

The Technology Reinvestment Project

The Technology Reinvestment Project (TRP) is being carried out by six executive branch agencies—the Departments of Defense, Commerce, Energy, and Transportation, the National Aeronautics and Space Administration, and the National Science Foundation. The purposes of the TRP, authorized under the Defense Conversion, Reinvestment, and Transition Assistance Act of 1993 and other legislation, are to create technologies that have potential for commercialization within five years; deploy dual-use technologies for both commercial and military applications; and promote work force education and training in manufacturing.

Promoting dual-use technological applications, it is argued, will help maintain the nation's capacity to meet security challenges while stimulating economic growth. Federal matching grants will speed up the rate at which innovations are introduced into defense systems, and will make these systems more affordable by integrating military production into the commercial industrial base.

By the end of FY 1993, 212 TRP proposals, of 2,800 submitted, had been funded for $605 million. Information technology, transportation, and health care were the areas of dual-use technology that received most of the program support.

The TRP is not explicitly designed to assist small firms. An examination of the list of TRP winners indicates that traditional large defense contractors and university-based organizations are the primary participants in this program. Small firms, however, participated in more than half of the technology

- An analysis of the structure of the defense industry in the state and direct/indirect defense expenditure patterns.
- A listing of defense prime contractors in Virginia who received at least $1 million in contract awards in 1991.
- Estimates of the dependency of Virginia's industries on defense procurement expenditures.
- A description of defense military and civilian employment by service branch, region, and installation.
- Historical and current profiles of defense procurement expenditure in Virginia.
- A directory of federal and state programs available to provide financial or technical assistance to dislocated defense workers, and defense-impacted communities, businesses and industries.
- A description of diversification activities being carried out in other states.

The recommendations of the commission have encompassed a broad range of legislative and executive branch actions:

- Additional funds were requested and appropriated to support expanded work force education and training programs.
- A new public/private organization in the northern part of Virginia (the Washington, D.C., suburbs) was created to address the needs of this particular region.
- The VEC and the Department of Defense are cooperating to develop a skills inventory of departing military personnel.
- Efforts to facilitate the transfer of surplus federal property and equipment to private ownership for development or educational purposes are being undertaken.
- The VEC has been instructed to continue to conduct economic research on defense-related issues.
- A hotline was established to provide up-to-date information on the availability of technical and financial assistance, data requests related to defense spending and employment in Virginia, and details regarding the work of the commission.
- Full-time staff positions in the executive branch have been allocated to support the efforts of the commission.
- A subcommittee on minority and women-owned businesses was created and is funneling issues, ideas, and solutions to the commission.
- The creation of a position of "advocate" for small and minority- and women-owned business has been called for in order to provide a coherent focus and visibility for furthering the interests of these groups in the defense diversification process. Specifically, the advocate would work with private and public entities to eliminate barriers to participation, coordinate activities among institutions working on defense adjustment issues, enlist the help of small business experts in providing technical assistance, and recommend specific mechanisms to further the interests of small and minority- and women-owned firms.

Business incubators have been found to be effective in assisting small business formation and success, particularly when the firms in the incubator share some common product or market orientation.

The plan recognizes that promoting home-grown economic diversification requires stimulating the overall entrepreneurial spirit of a local economy as well as encouraging the growth of its small firms.

Defense Diversification at the Local Level: Two Success Stories

The Brooklyn Navy Yard

The conversion of military facilities to commercial use is not a simple task. The commercialization of the Brooklyn Navy Yard in Brooklyn, New York, provides an illustration of the unevenness of the development process.

The first warships built in America were built at the Brooklyn Navy Yard in 1798, as was the first steam-powered warship, and the *Monitor* during the Civil War. During World War II the yard employed about 71,000 people to build, repair, and outfit ships. When it was decommissioned in 1966, the yard had six working drydocks and about 270 buildings—a total of 4.3 million square feet of rentable commercial space sprawled over more than 260 acres.[17]

In the early 1970s, New York City bought the yard from the federal government and gave the authority of running the yard to a newly created nonprofit corporation, the Commerce, Labor, and Industry Corporation of Kings County, New York (CLICK). CLICK planned to market the Navy Yard for large industrial users, but was never able to achieve employment levels of more than 1,500 people. After a series of audits and scandals, CLICK was disbanded in 1980.

The Brooklyn Navy Yard Development Corporation was created in 1981 to replace CLICK. In 1986, Coastal Dry Dock and Repair, the yard's largest tenant, went bankrupt. This event and the profound changes in the economies of the Northeast region and New York City forced the yard's development strategy to change. The focus was shifted to small startup firms. In 1985, the year before Coastal's insolvency, the yard had only 40 tenants, accounting for $4.7 million in annual revenues, who rented an average of 73,000 square feet. In 1993, it has 201 tenants, more than half of whom rent less than 5,000 square feet. Annual rental revenue is expected to be in excess of $9.0 million.

Today, the Brooklyn Navy Yard is a vast small business incubator and industrial park. Its tenants include small manufacturing companies such as furniture makers, printing companies, metal fabricators, theatrical set designers, and textile manufacturers. There are also construction companies and professional service firms such as architects and designers. These small firms may be startups or established businesses attracted by low rents, prime location, and a very supportive business environment. There is a Foreign Trade Zone within the yard to help businesses that are in the import-export trades.

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[17] Claudia H. Deutch, "Swords to Plowshares on Brooklyn Piers," *The New York Times*, (November 7, 1993), Real Estate section, page 1.

opment Administration's public works grant program. Support for a revolving loan fund for new tenants is being sought by the EIAC.

A Private Sector Initiative: CALSTART

CALSTART is a nonprofit consortium of more than 75 public and private institutions, formed to create a new transportation industry in California. Founded in 1992, its participants and sponsors include the state's six major utilities, aerospace and defense firms, small businesses, state and local governments, universities and research institutions, labor and environmental groups, and a federal laboratory.

CALSTART is designed to enhance the economy of California by creating new technologies and products in the advanced transportation industries. Specifically, CALSTART is charged with supplying the components for electric vehicles (EV) to automotive producers; establishing the infrastructure to successfully commercialize electric and natural-gas-powered vehicles; commercializing electric bus and mass transit systems; pushing new initiatives in fuel cells, hybrid vehicles, and advanced energy storage devices; and serving as a statewide information clearinghouse and center of activity for advanced transportation.

A major impetus to CALSTART is a new state law that mandates that by the year 2003, 10 percent of all cars sold in California must register zero emissions. This creates for CALSTART a built-in market for electric cars. As much as 70 percent of the components of EVs will be new products and will provide firms other than the traditional suppliers of today's internal combustion engines with a chance to grow in the marketplace.

CALSTART participants include many entrepreneurs who left large defense contractors in frustration after years of watching commercial possibilities of defense technology go unexploited, and small suppliers who have seen contracts from big defense firms disappear. Small firms are participating in CALSTART in many capacities, including marketing the electric cars, performing innovation engineering research and technical design, and manufacturing specific components for the EVs.

One premise of CALSTART is that California's aerospace companies have a technological advantage in EV component development because of their vast experience in designing lightweight, energy-efficient, highly reliable electromechanical systems for missiles and aircraft.[19]

CALSTART has produced a showcase electric vehicle, which is being shown to automobile manufacturers and others in the industry. The consortium also is street-testing its electric buses, has installed more than 100 charging stations in various parts of California as part of the program to make the state "EV-ready," and is operating an electronic bulletin board that allows for communication among all the consortium members.

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[19] A skeptical view of this position is offered in Les Daly, "But Can They Make Cars?," *The New York Times Magazine* (January 30, 1994), 26–27.

Appendix A

Supplementary Tables

Table A.1	*Sources of GDP Growth, J992 and 1993*	**159**
Table A.2	*Business Income Tax Returns by Receipt Size of Business for Selected Years, 1984–1992*	**160**
Table A.3	*Enterprises, Employment, and Annual Payroll by Major Industrial Sector and Firm Size, 1990*	**162**
Table A.4	*Enterprises, Employment, and Annual Payroll by Major Industrial Sector and Firm Size, 1991*	**164**
Table A.5	*Enterprises, Employment, and Annual Payroll by Firm Size, SBA Region, and State, 1990*	**166**
Table A.6	*Enterprises, Employment, and Annual Payroll by Firm Size, SBA Region, and State, 1991*	**174**
Table A.7	*Various Statistics by Industry (Two-Digit SIC Code) and Firm Size, 1990*	**182**
Table A.8	*Various Statistics by Industry (Two-Digit SIC Code) and Firm Size, 1991*	**206**
Table A.9	*Enterprises, Establishments, and Employment by Major Industrial Sector and Firm Size, 1990*	**230**
Table A.10	*Enterprises, Establishments, and Employment by Major Industrial Sector and Firm Size, 1991*	**234**
Table A.11	*Employment Share by Firm Size, SBA Region, and State, 1988–1991*	**244**
Table A.12	*New Business Incorporations by SBA Region and State, 1992 and 1993*	**256**
Table A.13	*New Firms by SBA Region and State, 1992 and 1993*	**258**
Table A.14	*New Firms by SBA Region and State, 1983–1993*	**260**
Table A.15	*Business Bankruptcies by SBA Region and State, 1992 and 1993*	**264**
Table A.16	*Business Bankruptcies by SBA Region and State, 1980–1993*	**266**

Table A.1 *Sources of GDP Growth, 1992 and 1993 (Billions of 1987 Dollars)*

	1992	1993	Dollar Change 1992–1993	Percent Change 1992–1993
Gross Domestic Product	4,986.3	5,136.0	149.7	3.0
Personal Consumption	3,341.8	3,453.2	111.4	3.3
Gross Private Domestic Investment	732.9	820.3	87.4	11.9
Nonresidential Construction	529.2	591.8	62.6	11.8
Residential Construction	197.1	214.2	17.1	8.7
Change in Business Inventories	6.5	14.3	7.8	120.0
Net Exports (Exports Minus Imports)	−33.6	−76.5	−42.9	127.7
Exports	578.0	598.3	20.3	3.5
Imports	611.6	674.8	63.2	10.3
Government Purchases	945.2	938.9	−6.3	−0.7
Federal	373.0	354.9	−18.1	−4.9
State and Local	572.2	584.0	11.8	2.1

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (June 1994), vol. 74, number 6.

[1] Size classes are based on the sum of business receipts—that is, gross amounts from sales and operations and gross rents for all industries except for the finance, insurance, and real estate industries. For the latter industries, positive net rental income was added to total receipts, which is the sum of business receipts and investment income. For partnerships, see also note below.

[2] Includes returns with no receipts as defined above.

[3] In 1981, the method of calculating total receipts for partnerships was changed by the IRS. Beginning with 1981 data, total receipts include, in part, only the net income or loss from farming and rentals. Previously, total receipts included the gross receipts from farming and rentals and, if rental receipts were the principal source of total receipts, they were treated as "business receipts" for this statistics. To help minimize the break in comparability caused by this change in statistical treatment of farm and rental income, an effort was made starting with 1981 to include rental (though not farm) gross receipts in the receipts used for the size distribution.

NA = Not available.

Source: U.S. Department of the Treasury, Internal Revenue Service, *SOI Bulletin 10,* no. 1 (Fall 1994), Table 12.

Wholesale Trade									
Number of Firms	374,283	186,019	75,610	54,588	316,217	46,849	8,007	371,073	3,210
Employment	6,332,437	333,939	499,958	728,860	1,562,757	1,693,941	977,453	4,234,151	2,098,286
Annual Payroll	181,249,158	9,758,638	12,018,618	18,170,863	39,948,119	43,541,669	26,398,140	109,887,928	71,361,230
Retail Trade									
Number of Firms	1,109,703	605,787	229,751	144,174	979,712	114,275	12,855	1,106,842	2,861
Employment	19,861,604	1,061,152	1,515,594	1,923,026	4,499,772	4,273,110	2,134,371	10,907,253	8,954,351
Annual Payroll	242,369,258	14,446,638	16,164,655	21,058,903	51,670,196	53,201,028	27,284,284	132,155,508	110,213,750
Finance, Insurance, and Real Estate									
Number of Firms	419,963	298,358	57,674	29,544	385,576	25,866	5,760	417,202	2,761
Employment	6,983,931	476,299	373,535	393,382	1,243,216	984,655	864,224	3,092,095	3,891,836
Annual Payroll	198,342,124	11,472,515	8,371,080	9,617,129	29,460,724	23,967,871	22,487,793	75,916,388	122,425,736
Services									
Number of Firms	1,921,767	1,200,505	363,345	186,433	1,750,283	136,760	27,386	1,914,429	7,338
Employment	28,880,444	2,098,685	2,364,281	2,472,307	6,935,273	5,283,645	5,003,879	17,222,797	11,657,647
Annual Payroll	601,553,639	54,417,414	49,459,256	53,307,079	157,183,749	103,701,939	90,119,588	351,005,276	250,548,363
Unclassified									
Number of Firms	64,767	58,305	3,975	1,594	63,874	783	64	64,721	46
Employment	132,116	45,767	25,648	20,896	92,311	24,219	3,165	119,695	12,421
Annual Payroll	2,260,357	1,070,400	223,643	188,988	1,483,031	223,212	31,277	1,737,520	522,837

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data provided by the U.S. Department of Commerce, Bureau of the Census. The data were produced by merging the Company Organization Survey and the Standard Statistical Establishment List.

Wholesale Trade									
Number of Firms	377,669	191,665	76,182	53,598	321,445	45,385	7,727	374,557	3,112
Employment	6,225,619	343,341	503,636	715,619	1,562,596	1,643,395	944,185	4,150,176	2,075,443
Annual Payroll	183,066,346	9,940,660	12,460,450	18,323,597	40,724,707	43,320,191	26,123,581	110,168,479	72,897,867
Retail Trade									
Number of Firms	1,104,036	608,654	227,132	141,968	977,754	111,278	12,208	1,101,240	2,796
Employment	19,626,546	1,071,285	1,497,476	1,891,717	4,460,478	4,146,710	2,041,184	10,648,372	8,978,174
Annual Payroll	247,516,015	14,999,868	16,687,371	21,543,023	53,230,262	52,898,378	26,757,512	132,886,152	114,629,863
Finance, Insurance, and Real Estate									
Number of Firms	409,863	294,303	55,029	27,554	376,886	24,370	5,693	406,949	2,914
Employment	6,862,377	465,585	355,330	364,880	1,185,795	920,647	827,191	2,933,633	3,928,744
Annual Payroll	200,394,099	11,035,168	8,174,740	9,272,347	28,482,255	23,493,135	22,278,988	74,254,378	126,139,721
Services									
Number of Firms	1,962,388	1,231,750	367,892	188,502	1,788,144	138,911	27,902	1,954,957	7,431
Employment	29,623,508	2,142,576	2,391,325	2,501,308	7,035,209	5,377,750	5,093,371	17,506,330	12,117,178
Annual Payroll	640,877,720	56,007,505	51,670,544	55,810,981	163,489,030	110,003,900	95,687,241	369,180,171	271,697,549
Unclassified									
Number of Firms	29,027	26,522	1,512	701	28,735	292	0	29,027	0
Employment	46,562	18,489	9,822	9,222	37,533	9,029	0	46,562	0
Annual Payroll	572,534	373,076	64,465	62,136	499,677	72,857	0	572,534	0

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data provided by the U.S. Department of Commerce, Bureau of the Census. The data were produced by merging the Company Organization Survey and the Standard Statistical Establishment List.

Table A.5 *Enterprises, Employment, and Annual Payroll by Firm Size, SBA Region, and State, 1990 (Annual Payroll in Thousands of Dollars)*

		Employment Size of Firm							
	Total	1–4	5–9	10–19	<20	20–99	100–499	<500	500+
United States									
Number of Firms	5,073,795	3,020,935	952,030	562,610	4,535,575	453,732	70,465	5,059,772	14,023
Employment	93,469,275	5,116,914	6,251,632	7,543,360	18,911,906	17,710,042	13,544,849	50,166,797	43,302,478
Annual Payroll	2,103,971,179	116,856,518	114,006,469	144,450,673	375,313,660	352,390,861	279,451,864	1,007,156,385	1,096,814,794
Region I									
Number of Firms	319,933	183,997	58,628	34,850	277,475	28,928	6,865	313,268	6,665
Employment	5,728,555	315,370	383,307	464,625	1,163,302	1,084,525	883,391	3,131,218	2,597,337
Annual Payroll	139,300,693	7,561,459	7,675,354	9,832,321	25,069,134	23,503,384	19,816,215	68,388,733	70,911,960
Connecticut									
Number of Firms	81,129	46,567	14,889	8,954	70,410	7,256	1,745	79,411	1,718
Employment	1,481,786	80,402	97,370	119,264	297,036	270,112	213,263	780,411	701,375
Annual Payroll	40,507,189	2,165,963	2,212,606	2,902,116	7,280,685	6,611,658	5,175,206	19,067,549	21,439,640
Maine									
Number of Firms	30,747	18,728	5,421	3,056	27,205	2,389	514	30,108	639
Employment	424,027	30,267	35,428	40,702	106,397	86,772	70,458	263,627	160,400
Annual Payroll	8,222,663	552,012	547,786	683,353	1,783,151	1,478,752	1,233,677	4,495,580	3,727,083
Massachusetts									
Number of Firms	135,585	76,269	25,241	15,306	116,816	13,220	3,171	133,207	2,378
Employment	2,772,586	133,215	164,936	204,052	502,203	506,119	433,084	1,441,406	1,331,180
Annual Payroll	68,739,961	3,376,067	3,432,682	4,408,665	11,217,414	11,251,190	10,029,858	32,498,462	36,241,499
New Hampshire									
Number of Firms	29,392	17,054	5,391	3,072	25,517	2,469	600	28,586	806
Employment	441,480	28,354	35,332	40,733	104,419	89,737	66,556	260,712	180,768
Annual Payroll	9,559,059	610,654	632,790	770,316	2,013,760	1,733,174	1,370,879	5,117,813	4,441,246
Rhode Island									
Number of Firms	25,110	14,465	4,442	2,664	21,571	2,277	543	24,391	719
Employment	393,456	24,800	29,163	35,949	89,912	84,106	65,608	239,626	153,830
Annual Payroll	8,151,778	544,707	536,671	686,260	1,767,638	1,595,067	1,339,943	4,702,648	3,449,130

Table A.4 *Enterprises, Employment, and Annual Payroll by Industrial Sector and Firm Size, 1991*
(Annual Payroll in Thousands of Dollars)

Industry	Total	Employment Size of Firm							
		1–4	5–9	10–19	<20	20–99	100–499	<500	500+
Total									
Number of Firms	5,051,025	3,036,304	941,296	551,299	4,528,899	439,811	68,338	5,037,048	13,977
Employment	92,307,559	5,151,143	6,174,730	7,386,939	18,712,812	17,146,411	13,143,390	49,002,613	43,304,946
Annual Payroll	2,145,015,851	118,233,813	116,794,212	146,516,583	381,544,608	352,032,797	279,436,898	1,013,014,303	1,132,001,548
Agricultural Services, Forestry, and Fishing									
Number of Firms	91,743	62,340	16,690	8,417	87,447	3,804	362	91,613	130
Employment	545,156	90,470	109,541	110,455	310,466	129,442	47,858	487,766	57,390
Annual Payroll	9,120,610	1,703,918	1,618,609	1,739,063	5,061,590	2,045,290	846,366	7,953,246	1,167,364
Mining									
Number of Firms	24,285	13,214	4,051	2,973	20,238	2,963	668	23,869	416
Employment	716,425	22,138	26,695	39,939	88,772	109,763	95,764	294,299	422,126
Annual Payroll	26,218,161	664,142	639,236	981,632	2,285,010	2,994,958	3,037,995	8,317,963	17,900,198
Construction									
Number of Firms	582,344	377,827	103,475	57,491	538,793	38,889	3,969	581,651	693
Employment	4,680,166	602,521	676,911	766,182	2,045,614	1,422,991	631,221	4,099,826	580,340
Annual Payroll	123,010,082	13,877,480	13,759,735	17,818,216	45,455,431	38,273,119	19,429,749	103,158,299	19,851,783
Manufacturing									
Number of Firms	322,018	125,369	59,552	52,018	236,939	64,460	16,052	317,451	4,567
Employment	18,390,674	222,835	399,570	709,296	1,331,701	2,657,138	2,921,842	6,910,681	11,479,993
Annual Payroll	545,157,710	5,868,762	8,005,983	15,563,555	29,438,300	63,129,592	71,947,379	164,515,271	380,642,439
Transportation, Communication, and Public Utilities									
Number of Firms	181,524	105,518	31,184	20,720	157,422	19,090	3,427	179,939	1,585
Employment	5,590,526	171,903	204,424	278,321	654,648	729,546	540,774	1,924,968	3,665,558
Annual Payroll	169,082,574	3,763,234	3,713,079	5,402,033	12,878,346	15,801,377	13,328,087	42,007,810	127,074,764

Table A.3 *Enterprises, Employment, and Annual Payroll by Major Industrial Sector and Firm Size, 1990 (Annual Payroll in Thousands of Dollars)*

Industry	Total	Employment Size of Firm							
		1–4	5–9	10–19	<20	20–99	100–499	<500	500+
All Industries									
Number of Firms	5,073,795	3,020,935	952,030	562,610	4,535,575	453,732	70,465	5,059,772	14,023
Employment	93,469,275	5,116,914	6,251,632	7,543,360	18,911,906	17,710,042	13,544,849	50,166,797	43,302,478
Annual Payroll	2,103,971,179	116,856,518	114,006,469	144,450,673	375,313,660	352,390,861	279,451,864	1,007,156,385	1,096,814,794
Agricultural Services, Forestry, and Fishing									
Number of Firms	87,939	59,421	16,173	8,098	83,692	3,745	372	87,809	130
Employment	534,125	86,338	105,997	106,592	298,927	127,895	50,545	477,367	56,758
Annual Payroll	8,724,020	1,623,390	1,518,039	1,654,922	4,796,351	1,997,351	811,286	7,604,988	1,119,032
Mining									
Number of Firms	24,309	13,250	3,925	3,058	20,233	3,015	629	23,877	432
Employment	723,420	21,593	25,820	41,225	88,638	111,605	87,423	287,666	435,754
Annual Payroll	26,671,410	714,999	615,773	1,026,685	2,357,457	3,072,475	2,868,747	8,298,679	18,372,731
Construction									
Number of Firms	597,272	372,677	110,619	63,297	546,593	45,030	4,885	596,508	764
Employment	5,258,524	603,801	724,903	844,033	2,172,737	1,663,237	791,975	4,627,949	630,575
Annual Payroll	132,972,138	13,652,646	14,074,052	18,684,004	46,410,702	42,908,394	23,212,001	112,531,097	20,441,041
Manufacturing									
Number of Firms	327,036	124,543	60,470	53,158	238,171	67,301	16,870	322,342	4,694
Employment	19,167,922	220,326	406,418	726,867	1,353,611	2,785,692	3,078,746	7,218,049	11,949,873
Annual Payroll	543,898,226	5,946,451	7,856,582	15,420,205	29,223,238	63,652,275	73,081,434	165,956,947	377,941,279
Transportation, Communications, and Public Utilities									
Number of Firms	180,900	102,820	31,795	21,257	155,872	19,943	3,465	179,280	1,620
Employment	5,594,752	169,014	209,478	286,172	664,664	762,043	553,068	1,979,775	3,614,977
Annual Payroll	165,930,849	3,753,427	3,704,771	5,321,895	12,780,093	16,124,647	13,157,314	42,062,054	123,868,795

Table A.2 *Business Income Tax Returns by Receipt Size of Business for Selected Years, 1984–1992 (Thousands)*

Receipt Size of Business (Dollars)[1]	Number of Businesses Reporting								
	1984	1985	1869	1987	1988	1989	1990	1991	1992
Total Returns	**16,076.1**	**16,919.4**	**17,525.2**	**18,351.4**	**18,619.4**	**19,560.7**	**20,052.9**	**20,499.0**	
Corporations, Total	**3,170.7**	**3,277.3**	**3,428.6**	**3,612.2**	**3,346.2**	**3,627.9**	**3,716.7**	**3,802.9**	**NA**
Under 25,000[2]	686.1	710.8	765.3	788.1	818.4	865.2	878.7	924.2	NA
25,000–49,999	212.5	236.6	244.2	267.3	227.9	240.9	252.0	260.1	NA
50,000–99,999	338.7	330.2	345.4	369.5	330.2	332.3	358.9	375.6	NA
100,000–249,999	615.2	620.5	630.6	659.4	620.5	631.6	661.7	665.6	NA
250,000–499,999	468.4	489.2	510.5	531.6	459.2	513.1	500.0	514.5	NA
500,000–999,999	344.8	352.4	370.4	391.3	352.4	414.7	416.0	415.8	NA
1,000,000 or more	505.0	537.6	562.2	605.0	537.6	630.1	649.4	647.1	NA
Partnerships, Total[3]	**1,643.6**	**1,713.6**	**1,702.9**	**1,648.1**	**1,593.9**	**1,635.2**	**1,553.6**	**1,515.4**	**1,484.8**
Under 25,000[2]	820.4	840.1	836.6	853.6	829.8	779.0	962.6	955.6	920.6
25,000–49,999	197.3	195.5	182.9	163.0	117.5	155.6	126.0	113.5	113.0
50,000–99,999	200.5	199.5	204.5	184.2	183.3	201.6	133.4	120.1	126.0
100,000–249,999	162.8	190.1	184.0	165.8	160.4	219.2	139.9	143.7	144.7
250,000–499,999	149.9	165.5	165.1	157.4	159.3	122.4	82.5	78.5	75.3
500,000–999,999	60.6	66.9	69.1	64.7	73.9	77.9	52.1	49.4	49.6
1,000,000 or more	52.1	56.0	60.7	59.4	69.7	79.5	57.1	54.6	55.6
Nonfarm Sole Proprietorships, Total	**11,261.8**	**11,928.5**	**12,393.7**	**13,091.1**	**13,679.3**	**14,297.6**	**14,782.6**	**15,180.7**	**15,123.0**
Under 2,5000[2]	2,988.9	3,067.5	3,178.4	3,299.4	3,364.9	3,623.1	3,750.1	3,985.0	3,775.9
2,500–4,999	1,324.4	1,444.6	1,495.1	1,553.5	1,509.9	1,621.5	1,714.5	1,704.6	1,741.3
5,000–9,999	1,482.2	1,633.6	1,666.0	1,846.5	1,962.8	1,998.2	2,011.7	2,058.8	2,005.4
10,000–24,999	2,036.4	2,104.6	2,175.3	2,284.2	2,509.2	2,612.7	2,719.8	2,809.7	2,869.3
25,000–49,999	1,261.3	1,393.9	1,466.6	1,559.0	1,601.6	1,660.0	1,660.2	1,724.8	1,817.0
50,000–99,999	1,061.3	1,094.1	1,138.3	1,172.0	1,225.8	1,259.0	1,282.1	1,327.0	1,269.0
100,000–499,999	984.4	1,060.2	1,140.9	1,232.1	1,337.3	1,333.9	1,444.2	1,388.6	1,453.6
500,000–999,999	86.1	89.3	95.4	101.6	118.3	139.7	142.7	122.7	133.1
1,000,000 or more	36.8	40.7	37.7	42.8	49.5	49.5	57.3	59.5	58.4

Table A.17	*Business Failures by SBA Region and State, 1992 and 1993*	**270**
Table A.18	*Business Failures by SBA Region and State, 1985–1993*	**272**
Table A.19	*Business Terminations by SBA Region and State, 1992 and 1993*	**276**
Table A.20	*Business Terminations by SBA Region and State, 1983–1993*	**278**
Table A.21	*Business Dissolution Rates by Firm Size and Number of Jobs Created*	**281**
Table A.22	*Employment in Selected Small-Business-Dominated Industries, December 1992 and December 1993*	**282**
Table A.23	*Employment in Selected Large-Business-Dominated Industries, December 1992 and December 1993*	**288**
Table A.24	*Employment in Selected Indeterminate Industries, December 1992 and December 1993*	**294**
Table A.25	*Change in Employment in Small-Business-Dominated, Large-Business-Dominated, and Indeterminate Industries, December 1992 and December 1993*	**299**
Table A.26	*Annual Change in Employment in Small-Business-Dominated, Large-Business-Dominated, and Indeterminate Industries, 1982 to 1993*	**300**
Table A.27	*Wage-and-Salary and Nonfarm Proprietors' Income by SBA Region and State, 1992 and 1993*	**301**
Table A.28	*Nonfarm Sole Proprietorships by Gender of Ownership and SBA Region, 1980 and 1991*	**307**
Table A.29	*Receipts of Nonfarm Sole Proprietorships by Gender of Ownership and SBA Region, 1980 and 1991*	**308**
Table A.30	*Nonfarm Sole Proprietorships by Gender of Ownership and Industry Group, 1980 and 1991*	**309**
Table A.31	*Receipts of Nonfarm Sole Proprietorships by Gender of Ownership and Industry Group, 1980 and 1991*	**310**

In July 1993 CALSTART received $4 million in funding from the Defense Advanced Research Projects Agency.

Conclusion

The U.S. economy will experience many changes during the next several years. Among them is the shift of valuable economic resources away from the production of defense-related goods and services. The transition to nondefense activities will be a complicated and lengthy process affecting businesses, workers, and local communities. Governmental and private sector responses are being created and reinvented to ameliorate business dislocations and to facilitate the adjustment process.

Small firms, disadvantaged in the short term as the adjustment process starts, must find ways to actively participate in the transition of their local communities. Their involvement will help ensure their survival and a share in the long-term prosperity promised by defense diversification.

The yard's management has also made investments to enhance security, to repair roads and street lights, and to upgrade such elements of the infrastructure as the elevators, windows, and heating systems. In addition, there are programs to stimulate communication and cooperation among tenants and encourage them to do business with one another.

England Air Force Base

England Air Force Base in Alexandria, Louisiana, was closed in the spring of 1992. Two years before, planning had begun for converting the facility. The local leadership, while actively lobbying to keep the base open, simultaneously prepared themselves for the loss of a major area business.[18]

In 1990, when England Air Force Base first appeared on the Defense Department's list of possible bases to be closed, the president of the local chamber of commerce forged a small group of public and private leaders to prepare a contingency plan in case of closure. The first step was to have the Louisiana legislature enact a law establishing the England Economic and Industrial District as a "body politic" that could receive the base's assets, valued at $120 million with a replacement value of $602 million. Next, funds were obtained from the state, the Office of Economic Adjustment in the Department of Defense, and the Economic Development Administration for community defense conversion planning and construction, and from the Federal Aviation Administration for the development of airport improvements. The Air Force later supplemented this money with a $2.4-million annual maintenance contract for the property. A private firm was hired to assess the base's condition and to develop and assist in executing an implementation program.

Among the base's many assets were two runways, a rail spur, 495 buildings with 2.3 million square feet of available industrial and office space, private and multifamily housing units, dormitories, a hospital, a school, a retail center, a golf course, a bowling alley, a theater, and a swimming pool.

The development plan centered around redeveloping the airport facilities as a commercial airport, and creating an industrial park from the base's buildings.

The base has been renamed the England Industrial Airpark and Community (EIAC), and the plan is well underway. EIAC's occupants include a transport company that has established a driver training center and a distribution terminal and a calibration company that has moved in to take advantage of instruments left behind by the Air Force. The Army has contracted to use part of the Airpark as a staging area for troop maneuvers. In all, some 20 tenants with the potential to create 1,200 jobs have submitted leases. The businesses cover 44 percent of the total property area. Currently, 66 percent of the existing resources are to be converted to new uses.

Additional resources for planning and improving the airport's infrastructure have been received from the state of Louisiana and the Economic Devel-

[18] Gene Faulkner, "Early Caretaker Role Pays Off for Louisiana Community," *Economic Development,* National Council for Urban Economic Development (October 1, 1993), 4–5.

Defense Diversification: A Regional Approach

The St. Louis, Missouri, region is adapting to major declines in defense spending.[16] McDonnell Douglas, based in St. Louis, is the nation's largest military contractor, concentrating on fighter aircraft and missile systems. In addition, in this region there are more than 700 other prime contractors for the Pentagon as well as countless subcontractors and suppliers to defense-related firms.

In 1990, the St. Louis Economic Adjustment and Diversification Committee was established by public and private business organizations. Through the committee, economic development and human resource leaders from two states (Missouri and Illinois), ten counties, and numerous private sector organizations joined to create the St. Louis Regional Economic Plan. Nine research studies conducted in 1991 developed basic information for the plan through surveys of prime contractors and workers, analysis of the area's economic strengths and weaknesses, information about available business financing programs, studies of other defense-dependent communities, and analysis of the region's business incubators.

All of the studies were designed to support future diversification of the regional economy. The committee leadership chose to focus on this single long-term goal and to stimulate activities that would move the regional economy in that direction. The plan offers a three-year program that coordinates, leverages, and focuses efforts among the states, counties, and private businesses in the St. Louis metropolitan region.

The major elements of the plan are business development programs and strategies for international and export assistance, job training and employment enhancement, business financing, and technology transfer and management assistance.

Particular interest is being given in the plan to some of the special needs of small firms. For example, many small and medium-sized firms—particularly those losing defense contracts—cannot support employee retraining programs, and current federal rules require private matching funds for these programs. The plan recommends that such rules be changed to allow small businesses to retrain existing workers without having to lay them off.

A computerized business information system was designed to improve the flow of information between small businesses and such information providers as libraries, universities, and economic development organizations. The system, which is designed to run on a desktop machine, allows each user to download data bases and other information from a central source and to share information directly with other users.

A biomedical technology incubator is being developed and additional funding is being made available for existing business incubators in the region.

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[16] Robert M. Lewis "Adjusting to Defense Spending Cuts," *Economic Development Commentary,* National Council for Urban Economic Development (Spring/Summer 1992), 4–11; and Michael Oden, Catherine Hill, et al., *Changing the Future: Converting the St. Louis Economy,* Center for Urban Policy Research, Rutgers, The State University of New Jersey, Working Paper No. 59 (November 1993).

development proposals. The TRP requirement that any government funds must be matched by a cash contribution probably works to the disadvantage of small firms. Easing this requirement, e.g., allowing in-kind contributions of space, equipment, or personnel, may increase the participation of smaller defense firms.

Defense Diversification: A State Approach

Responses in the Commonwealth of Virginia are illustrative of the breadth and depth of state-level reactions to changes in federal defense policies.[15] A Governor's Commission on Defense Conversion and Economic Adjustment was created in 1992 to identify and help implement policies and structures that would aid in the diversification of defense-dependent industries and their employees, and to support long-term economic development.

Fifteen people serve as members of the commission and bring a wide range of experience and perspectives to the problems created in the Commonwealth by defense changes. They are drawn from organized labor, defense- and nondefense-related private businesses, higher education, and federal and state government. Three principles were established to guide the commission's work: (1) extant federal and state programs were to be utilized and any new resources were to be deployed through established activities; (2) initiatives were to be based on the best possible empirical information and such research was to be fostered; and (3) direct service delivery was to occur with substantial local involvement.

The commission is supported by a task force drawn from executive branch agencies. The Virginia Employment Commission (VEC) was designated to chair the task force and to provide the primary staff to the commission.

The commission and its staff have held extensive and comprehensive hearings across the state, made visits to defense-dependent firms to conduct interviews and take surveys, issued a series of reports describing the quantitative dimensions of the state's defense adjustment problem, visited and conducted interviews with officials from a sample of counties and cities identified as potentially affected by defense reductions, and made a series of recommendations to the governor.

Training of workers, market development, permitting/ environmental regulation, and innovation (product development, process changes, technical assistance, and technology transfer) were identified by the manufacturing firms surveyed as the priority problem areas where assistance would be most useful. (Nonmanufacturing firms, especially defense firms in the service industries, will be targeted for the next round of investigation.)

Information published by the commission includes:

[15] This discussion is drawn from *Governor's Commission on Defense Conversion and Economic Adjustment: Report to the Governor, November 1992,* and *Interim Report, June 1993;* and Robert J. Griffis, *Sources of Help for Communities, Companies, and Individuals Affected by Cuts in Defense Spending,* Commonwealth of Virginia, Virginia Employment Commission, July 1993.

versely affected by the reductions in defense outlays will have to compete with other small businesses for program funds. These general programs include: the Small Business Administration's (SBA) loan guarantee and management assistance programs; the Department of Commerce's Economic Development Administration (EDA) Title IX grant assistance and National Institute of Standards and Technology (NIST) programs; the Department of Labor's Economic Dislocation and Worker Assistance Act job training assistance; Export-Import Bank assistance; and the Small Business Innovation Research grant programs run by individual federal agencies and coordinated by the SBA.

An array of federal programs is targeted at the specific needs of businesses, workers, and communities coping with the economic adjustments arising from significant changes in defense programs. Since 1961, the Office of Economic Adjustment (OEA) in the Department of Defense has been at the center of federal efforts. The functions of the OEA have been broadened and their capacity enhanced. In 1978 the OEA became staff to the Economic Adjustment Committee (EAC), consisting of representatives of 23 federal departments and agencies.[14]

By design, the EAC's primary mission is to facilitate the economic adjustment process. Affected communities and businesses are expected to initiate and carry out the requisite activities.

The Defense Authorization Act of FY 1993 provided several new forms of adjustment assistance and authorized $1.8 billion in new funding for assistance programs. The major forms of assistance approved included: $686 million in worker assistance to aid military and civilian employees of the Pentagon and defense workers displaced by reduction in defense spending; $190 million to provide economic planning and development assistance to communities suffering the effects of cuts in military installations and of business lost by defense contractors; $110 million for civilian-military youth community service programs; and $682 million to support programs and activities to maintain the defense technology and industrial base and to promote the commercial application and exploitation of defense-related technologies. Also provided by the Defense Authorization Act are the expansion of the existing Defense Procurement Technical Assistance program, the establishment of a new program in the Department of Energy to provide for the transfer of technology to small businesses, and the earmarking of funds for assistance to small firms in developing dual-use capabilities.

A Defense Dual-Use Diversification Loan Program (DDLP) was created in the fiscal year 1995 Department of Defense appropriation act. The purpose of the DDLP is to facilitate the movement of defense contractors into com-

[14] These agencies include the Departments of Agriculture, Justice, Commerce, Defense, Education, Health and Human Services, Housing and Urban Development, Interior, Labor, State, Transportation, and Veterans' Affairs, the Council of Economic Advisers, the Office of Management and Budget, the Office of Personnel Management, the United States Arms Control and Disarmament Agency, the General Services Administration, the Small Business Administration, and the United States Postal Service.

Defense-dependent small businesses face several disadvantages that are directly the result of their size:[12]

- Management—Small firms have limited personnel who can devote time to creating new products and cultivating new markets.
- Information—Small businesses have insufficient resources to uncover and mine market information necessary to organize the transition to nondefense products.
- Transferring Technology—Small firms' experience in transferring defense technologies to commercial uses is limited. They also lack time and money to accomplish such transfers.
- Marketing—Small companies have little or no experience in selling to nondefense customers; many have no sales staff at all and have depended upon military-related customers to seek them out.
- Organizational Structures—Overhead costs for small defense-dependent firms are high because of DOD accounting, auditing, and reporting requirements. Also, their production processes are geared to limited quantity production of high-quality, high-cost goods rather than to production of the mass quantities of price-competitive goods likely to be required in commercial markets.

Financing: A Special Problem for Small Defense Firms

Finding capital is a difficult problem faced by most small firms with high technology products. For those who have been defense-dependent, finding capital to fund a shift away from the defense market is a particularly nettlesome problem. Small firms in the defense sector have been insulated from private capital markets because the DOD has been the major source of working capital and capital for expansion. These firms are simply inexperienced in working with private capital market institutions. Simultaneously, private investors are not knowledgeable about the people who run these businesses or about the technologies of defense products and their applicability to commercial markets. Furthermore, private investors are anxious about the defense industry's reputation for cost overruns, their inability to meet deadlines, and other cultural characteristics that make defense-related businesses questionable investments.

Some private investment companies are beginning to fill a newly created niche in the market by providing startup capital to ventures planning to commercialize defense technologies.

Proposals to have the federal government support these private efforts are being offered. The federal government could create and support a quasi-private investment company, similar to the home mortgage and student-loan marketing entities. The investment company would be staffed by people with

[12] Defense Budget Project, *The Public Sector Role in the Adjustment of Defense-Related Small Businesses: Defense Project Roundtable Summary*, (Washington D.C.: Defense Budget Project, November 21, 1991), 3–6.

Table 4.5 *State Estimates of Total Defense Industry Jobs, Small Firm Defense Jobs, and Changes in Small Firm Defense Jobs, 1992–1999*

State	Total Defense Industry Jobs, 1992 (Thousands)	Small Business Total Defense Jobs, 1992 (Thousands)	Small Business as Percent of Defense Total, 1992	Reductions in Small Business Defense Jobs, 1992–1999		Small Business Defense Industry Jobs, 1999 (Thousands)
				(Thousands)	(Percent)	
Alabama	42.3	25.0	59.2	−9.4	−37.7	15.6
Alaska	7.0	4.0	57.9	−1.4	−34.0	2.7
Arizona	50.9	14.6	28.6	−6.5	−44.7	8.1
Arkansas	17.1	10.8	63.1	−4.6	−42.5	6.2
California	543.7	139.9	25.7	−55.2	−39.5	84.7
Colorado	51.5	15.5	30.0	−5.5	−35.8	9.9
Connecticut	92.0	21.6	23.5	−10.1	−46.9	11.5
Delaware	6.7	4.5	67.2	−1.7	−38.4	2.8
District of Columbia	16.9	5.9	35.1	−2.2	−36.6	3.8
Florida	112.5	39.0	34.6	−16.5	−42.3	22.5
Georgia	62.0	15.0	24.2	−6.2	−41.7	8.7
Hawaii	10.8	6.4	59.2	−2.2	−34.8	4.2
Idaho	4.2	3.6	84.9	−1.2	−34.7	2.3
Illinois	82.1	43.3	52.7	−18.3	−42.2	25.0
Indiana	63.7	18.6	29.2	−8.4	−45.1	10.2
Iowa	19.1	5.6	29.4	−2.4	−42.4	3.2
Kansas	24.3	8.5	35.1	−3.5	−41.2	5.0
Kentucky	21.1	16.5	78.1	−6.7	−40.7	9.8
Louisiana	38.5	21.3	55.5	−9.2	−43.3	12.1
Maine	14.4	2.7	18.4	−1.2	−44.1	1.5
Maryland	82.4	33.5	40.6	−13.8	−41.3	19.7
Massachusetts	132.6	36.3	27.4	−15.4	−42.4	20.9
Michigan	66.8	25.8	38.5	−11.0	−42.6	14.8
Minnesota	44.8	10.4	23.3	−4.5	−43.3	5.9

Table 4.4 *Defense-Related Employment in the United States 1991–2003 (Thousands)*

Year	Active Duty Military Personnel	DOD Civilians	Defense-Dependent Jobs in the Private Sector	Total Defense-Dependent Jobs
2003	1,170	687	1,535	3,392
2002	1,183	698	1,576	3,457
2001	1,197	708	1,619	3,542
2000	1,211	719	1,661	3,591
1999	1,225	730	1,706	3,661
1998	1,225	744	1,802	3,771
1997	1,230	756	1,912	3,898
1996	1,248	778	2,068	4,094
1995	1,268	803	2,303	4,374
1994	1,398	836	2,429	4,664
1993	1,483	868	2,638	4,989
1992	1,585	899	2,925	5,409
1991	1,611	911	3,075	5,597

Note: Defense-dependent jobs in the private sector represent defense contractors and subcontractors.

Source: Nestor Terleckyj, *Estimating the Local Effects of Defense Cuts on Small Business: 1992–1999*, report no. PB95–100285, prepared by NPA Data Services, Inc., for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, 1994), 13.

A state distribution of private sector defense employment was estimated from reports on the amount of defense contracts and purchases in each state and other estimates of all defense industry jobs by state.

To obtain state estimates of small firm defense employment, SBA and Census Bureau data covering wage-and-salary employment by size of firm were adjusted to include self-employed proprietor jobs in the respective state and industry totals.

The small business share of defense employment by state can be approximated by comparing the estimates of defense and small business defense employment.

The total reduction in private sector defense industry jobs between 1992 and 1999 is projected at 1.2 million, from 2.9 million in 1992 to 1.7 million in 1999. Because there is no statistical basis for assuming changes in the small business defense jobs other than proportionality with the reduction in the total defense industry jobs, the state-by-state percentage reductions estimated for all defense industry jobs are used to calculate the reductions in the small business defense industry jobs by state between 1992 and 1999 (Table 4.5).

The projected 438,800 reduction in direct small business defense-related jobs is concentrated in areas where defense industry jobs in small business

Table 4.3 *Projected Change in Total Defense Jobs from 1991 to 2001 as a Percentage of Total Employment in 1991, Selected Areas*

U.S. Total	−1.7	Grand Forks, ND	−6.1
Alexandria, LA	−8.3	Great Falls, MT	−7.7
Anniston, AL	−8.5	Huntsville, AL	−8.9
Appleton-Oshkosh-Neenah, WI	−5.6	Jacksonville, NC	−15.3
Bellingham, WA	−12.5	Lawton, OH	−11.7
Biloxi-Gulfport, MS	−8.5	Lima, OH	−15.3
Bremerton, WA	−14.4	Macom-Warren-Robbins, GA	−5.2
Charleston, SC	−5.5	Melbourne-Titesville-Palm Bay, FL	−5.0
Cheyenne, WY	−6.4	Merced, CA	−8.9
Clarksville-Hopkinsville, TN–KY	−13.8	New London-Norwich, CT	−15.5
Columbus, GA–AL	−6.4	Pascagoula, MS	−24.7
Enid, OK	−5.4	Rapid City, SD	−5.5
Fayetteville, NC	−17.4	Salinas-Seaside-Monterey, CA	−9.5
Fort Walton Beach, FL	−10.1	South Bend-Mishawaka, IN	−5.3
Fort Worth-Arlington, TX	−6.4	Vallejo-Fairfield-Napa, CA	5.2

Note: Areas included are those in which the rate of decline in defense employment exceeds three times the national average.

Source: NPA Data Services, Inc., *Cuts In Defense Jobs in U.S. Counties, Metropolitan Areas, and States, 1991–2001* (Washington, D.C., 1992), Table 4.2.

businesses in these areas will be severely tested. Governmental and nonprofit entities will also be caught up in restructuring local economies.

In assessing the economic effects of defense reductions, the secondary impacts on local communities are very important. Estimates that fail to take into account such effects are seriously biased. Every defense job creates approximately another 0.2 to 1.6 jobs in the rest of the local economy; the number varies depending on the nature of the local economy and whether the defense jobs are military, civilian, or private sector.[8]

Small Business and Defense Adjustments

The planned cuts in defense spending will affect many small businesses.[9] Nationally, about one-half of total unemployment attributable to defense cuts represents small firm job losses. Some small firms will lose contracts or defense-related sales to the government or to prime defense contractors. Most small

[8] U.S. Congress, Office of Technology Assessment, *After the Cold War: Living With Lower Defense Spending*, OTA–ITE–524 (Washington D.C: U.S. Government Printing Office, February 1992), 156.

[9] This section is drawn from Nestor Terleckyj, *Estimating the Local Effects of Defense Cuts on Small Business, 1992–1999*, report no. PB95–100285, prepared by NPA Data Services, Inc., for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, 1994).

Table 4.1 *Employment Effects of Planned Reductions in Defense Spending (Thousands)*

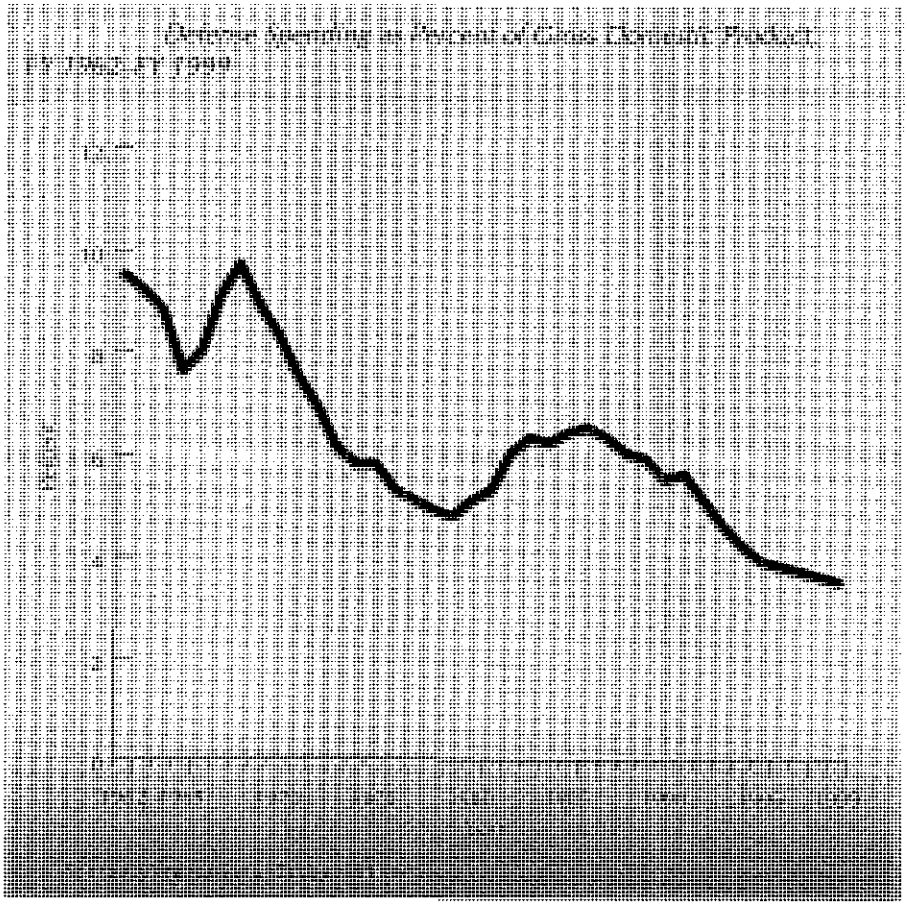
	Defense Employment 1991 Estimate	Employment Changes Associated With Planned Cuts	
		Through 1991	1992–1995
Construction	393	−2	−79
Metal Products	110	−14	−12
Miscellaneous Nonelectrical Machinery	54	−6	−5
Communications Equipment, Electronic Components	265	−64	−18
Aerospace	411	−76	−11
Shipbuilding and Boatbuilding	65	−14	−7
Instruments	29	−5	−2
Trucking and Buses	110	−8	−17
Wholesale Trade	180	−7	−21
Eating and Drinking Places	108	1	−11
Hotels, Repair Services	85	−6	−11
Business Services	413	7	−54
All Other Industries	686	−77	−81
Total	**2,908**	**−271**	**−329**

Source: U.S. Congress, Congressional Budget Office using the INFORUM Model, *The Economic Effects of Reduced Defense Spending* (Washington, D.C.: Congressional Budget Office, February 1992), 25.

Moreover, there are great differences in the role of defense-related activities within individual states. Defense activities are often concentrated in parts of a state, while other parts of the same states have comparatively few defense jobs. In Virginia in 1991, for example, DOD employment totaled 199,185; 89 percent of those employees worked either in Northern Virginia, supporting activities at the Pentagon, or in the Hampton Roads area of Virginia as part of the Navy's base, shipbuilding, and ship repair programs.[5]

Reductions in defense spending are also felt across local economies. Closing or downsizing a military installation means job losses for both military and civilian employees of the DOD. The local economy loses payroll earnings, and as family incomes fall, consumer spending on the goods and services produced and sold by local merchants goes down. When a military procurement is cancelled or stretched out the pattern is the same—job losses, declining consumer spending, and lower sales by local area merchants.

[5] Commonwealth of Virginia, *Governor's Commission on Defense Conversion and Economic Adjustment: Report to the Governor* (Richmond, Va.: Commonwealth of Virginia, November 1992), 7.



sumption if those resources are utilized to reduce the federal deficit or to increase public and private investment opportunities.

One instructive attempt to isolate the short-term effects of reduced defense spending was conducted by the Congressional Budget Office (CBO). The analysis assumes that defense spending reductions, rather than being offset by increases in other federal spending programs, are used to reduce the federal deficit.[2] Although such an analysis is not a precise forecast, it is a reasoned way of obtaining a sense of the quantitative impact of a single event. The analysis finds that a defense reduction plan similar to the one prescribed in OBRA 93 would lower the nation's gross domestic product (GDP) just slightly. The level of real GDP would be reduced by 0.2 percent compared to a forecast of what GDP would have been without the defense reductions. This reduction in the level of GDP is too small to affect the growth rate of GDP from 1993 through 1998.

[2] U.S. Congress, Congressional Budget Office, *Effects of Alternative Defense Budgets on Employment*, CBO Papers (Washington, D.C.: Congressional Budget Office, April 1993).

Introduction

The collapse of the Soviet Union and the end of the 40-year Cold War have allowed the United States to shift a large portion of its public spending away from national security. In 1993, defense spending accounted for 6.5 percent of U.S. gross domestic product; by 1997, it is predicted to drop to about 3.2 percent. Total defense-related jobs, which peaked at 7.2 million in 1987, are projected to fall to 4.5 million.

This chapter examines the magnitude and shape of recently enacted changes in defense spending, describes the effects of these changes on small business, and considers some problems and opportunities for business diversification created by defense spending changes. Also discussed are some new private and public institutions that have been created to ease the adjustment process.

The ability of small and large businesses to adapt to an economy with lower levels of defense spending is affected by many forces, including their location and access to markets, the skills and motivations of their labor forces, the growth of the regional and national economies, community leadership in effecting the transition away from defense dependency, and the managerial skill and wisdom of the entrepreneurs themselves. Economic development programs at all levels of government can only be successful when they are used in conjunction with these larger forces; they probably will not offset poor judgment or bad luck. In the U.S. economy it is ultimately the actions of the owners and managers of private firms that determine their ability to survive and prosper.

In August 1993, the Omnibus Budget Reconciliation Act of 1993 (OBRA 93) cleared the Congress and was signed by the President. A blueprint for deficit reduction, OBRA 93 further reduced the already slower growth of all discretionary spending programs including defense spending. Defense spending, whether measured in current dollars, adjusted for inflation, or viewed as a percentage of the economy's total output, is not projected to grow in the near future.

The economy has experienced changes in defense spending before. Since 1962, total defense spending has trended upward, but the trend has been uneven. The period of very rapid growth in defense spending during the 1980s occurred between two periods of slow growth (Chart 4.1). The decline in defense spending that is projected to the end of this century is more gradual and smaller relative to the size of the economy than the cutbacks that followed World War II and the Korean and Vietnam wars (Chart 4.2).

The Effects of Defense Changes on the National Economy

Changes in the level of defense spending will be felt directly by small business through several channels. In fiscal year 1992 small firms were awarded $17.6 billion in prime contracts over $25,000 from the U.S. Department of Defense (DOD). DOD is the single largest source of prime contracts to small firms in the federal government. Of the total $28.2 billion in federal contracts received by small firms in fiscal year 1992, 62.6 percent ($17.7 billion) came from DOD. In

approximately 5 years old at the time of the survey, although "studies by experts on technology development concluded that 5 to 9 years are needed for a company to progress from a concept to a commercial product." [50] Even so, total sales resulting from the technologies of the 1,457 projects amounted to $471 million by July 1991, for an average of about $323,000 per project.[51] There was also another $646 million in additional developmental funding, an average of about $443,000 per project. "About 65 percent of the sales and 56 percent of the additional developmental funding occurred in the private sector." [52] For 34 percent of the projects, the firms attributed more than half of the growth of the firm to SBIR.

The SBIR method of meeting the government's research needs has achieved encouraging results; it is also a positive example of how a government program can be focused, designed, and implemented. Government must be involved in innovation, in order to capitalize on the strengths of small business.

Conclusion

An innovation is defined as the introduction into the marketplace of the results of a new idea. Innovations may be classified into four categories: product, service, process, and management. Overall, technological changes, which are innovations and their diffusion, are credited with about 30 percent of the increase in gross domestic product from 1947 to 1992. Small firms were estimated to be responsible for 55 percent of the innovations, which include innovations of different levels of significance. Small firms produce twice as many product innovations per employee as large firms, including the employment of firms that do not innovate. They also produce about twice as many significant innovations per employee as large firms.

Small R&D firms are quite research-intensive: the percentages of employees that are R&D scientists and engineers were 6.41 percent in small R&D firms and 4.05 percent in large firms. The small firm percentage share of nonfederal funds is about 2.8 times its percentage share of federal funds. A federal R&D dollar to a small firm is more than four times as likely to be used for basic research as a federal R&D dollar to a large firm (16.48 percent vs. 3.68 percent).

Intellectual property is defined as patents, copyrights, trademarks, and trade secrets. Small firms obtain more patents per sales dollar, in spite of the finding that large firms are more likely to patent a discovery, implying that small firms have more discoveries. Both small and large firms consider patents to be their most important form of intellectual property protection. Small firms

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[50] U.S. General Accounting Office, *Small Business Innovation Research Shows Success but Can Be Strengthened* (RCED–92–37, March 1992), 17. Page 20 states that responses were received from 1,457 projects, of which 939 were still active, 732 reported additional development funding (p. 24), 515 had sales (p. 21), and 293 projects reported 539 patents (p. 28).

[51] Technology licenses are also an important source of revenues.

[52] Ibid., page 5.

The SBIR program must serve federal missions: every subject in a solicitation is to be consistent with the programmatic goals and objectives of the agency. The research topics are usually quite broad, with the result that innovative solutions to problems are not only permitted but encouraged.[45]

The SBIR program has three phases. Phase I is a limited effort, usually for six months, to determine the scientific and technical merit and feasibility of an idea. This phase has been restricted to ideas "that appear to have commercial potential" by the new legislation. The amount that can be awarded in Phase I has been raised from $50,000 to $100,000.

Only those firms who win Phase I are eligible to apply for Phase II, the detailed research and development phase that often ends with the development of a prototype product or process. "Commercial potential" receives increased emphasis now in Phase II as well, which is usually for two years. Where two or more proposals for a second phase are evaluated as being of approximately equal scientific and technical merit and feasibility, special consideration is given to those proposals with nonfederal capital commitments for a third phase. The amount that can be awarded in Phase II has been raised from $500,000 to $750,000.

Small firms conduct Phase III with non-SBIR funds to pursue commercial applications of the R&D funded in Phases I and II. Phase III is the keystone of the program and involves private sector investment and support to bring the innovation into the marketplace. Phase III may involve non-SBIR R&D or production contracts with a federal agency for products or processes intended for use by the federal government.[46] The SBA has developed a computerized commercialization matching system, which can link SBIR awardees with potential sources of capital.

FY 1992 was the 10th year of the SBIR program. In the first 10 years of the program, over $3 billion has been awarded to small firms for a total of 18,824 projects.[47] The program has been very competitive: on average, eight proposals have been received for every Phase I award. The SBA intellectual property study found that 32 percent of the small enterprises with intellectual property had submitted SBIR proposals and 22 percent had received awards.

During the first 10 years of the program, the technology areas receiving the most SBIR funding were information processing, optical devices/lasers, advanced materials, and biotechnology/microbiology. The depth and breadth of the technological potential are illustrated by the commercialization of surgical lasers, drugs for brain diseases, and Japanese ideogram recognition.

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[45] U.S. General Accounting Office, *Small Business Innovation Research Shows Success but Can Be Strengthened* (RCED–92–37, March 1992), 28.

[46] Phase III also sometimes involves competition between small firms and government laboratories. See U.S. General Accounting Office, *Small Business Innovation Research Shows Success but Can Be Strengthened* (RCED–92–37, March 1992), 47–50.

[47] U.S. Small Business Administration, Office of Innovation, Research and Technology, *Small Business Innovation Development Act: 10th Annual Report* (Washington, DC: U.S. Small Business Administration, November 1993).

search (SBIR) program, ultimately embodied in the Small Business Innovation Development Act of 1982.[41] As documented in the SBIR hearings, the reasons found for the lack of small business participation in federal R&D procurement, and the SBIR solutions designed to eliminate the problems, were:

Problem	*Solution*
1. Winning proposals are often too long and expensive for small business to undertake.	1. Limit proposals to 25 pages and to small business. Advertise availability of guides to proposal preparation. Limit proposal instructions to 20 pages.
2. Projects are often bundled into funding agreements too large for small business.	2. Offer up to $50,000 (now $100,000) as a first-round award, with competitive follow-on awards possible.
3. Project managers often prefer established institutions.	3. Limit the size of Phase I awards and develop a mailing list to ensure a qualified group of respondents to any technology that might be solicited. (Announcements of all agency solicitations are sent to an SBA mailing list of over 50,000.)
4. Opportunities are difficult to ascertain; information from frequent visits may be necessary to respond adequately.	4. Address meetings around the country to discuss the program; mail announcements of upcoming solicitations.
5. Response times are often too short and bunched together.	5. Require solicitation closing dates to allow enough time to fully respond. Space solicitation closing dates throughout the year.
6. There are too many noncompetitive awards.	6. Make numerous, competitive Phase I awards to get broadest possible competition for Phase II awards.

Payoffs in Competition and Efficiency

The SBIR program brings new technological vendors to science and engineering research. The overall cost of such a program includes the extra effort of building a mailing list, attending outreach conferences, composing instructional materials, reading more proposals, and making more and smaller awards. But it should also be borne in mind that the proposals are shorter. There is anecdotal evidence that the agencies in the SBIR program have become more appreciative of the merits of this method of soliciting R&D. The payoff from this program is in the breadth of new ideas and the cost-efficiency

[41] Much of this analysis was conducted at the National Science Foundation.

makers believe that the R&E credit must be made permanent so businesses can plan and budget their research further into the future.

The most recent analysis of the effect of the R&E tax credit estimates the additional R&D spending induced by the credit at twice the amount of foregone tax revenue.[35] The SBA intellectual property study found that large enterprises were more than twice as likely to have used the credit: 34 percent of small enterprises with intellectual property and 76 percent of large enterprises had used R&E tax credits.

Government Research

The federal government is also the largest single consumer of U.S. research. Much of this is military research which does not often lead directly to commercial results. Therefore, the federal government has established programs such as Small Business Innovation Research (SBIR) and enacted other legislation for the transfer of federal research into promising commercial fields. Legislation on government patents now favors private ownership of patents, copyrights, and technical data and is designed to stimulate innovation by exploring additional uses for government research. Other legislation attempts to provide incentives for federal laboratory researchers to commercialize government research through a royalty sharing plan. Efforts are also being made to decentralize licensing and contract authority to individual government research establishments and to encourage industrial participation in government research through cooperative research agreements. However, cooperative research, and cost sharing in general, effectively preclude many small firms because of the expenses involved.

Does the government have a more specific role in encouraging innovation? When the term "high-tech" is mentioned, discussion sometimes follows on possible federal intervention in the marketplace to achieve a desired balance among industries. To be effective, such intervention would have to be more prescient than the workings of the marketplace in foreseeing the commercially successful new products and processes. Many argue that one of the best roles for government in innovation is to be an equitable purchaser of R&D services from a variety of sources, including a fair share from the small business community.[36] "The procurement interests of government . . . have had an effect on industrial innovation that goes far beyond the differential support of various fields of applied sciences."[37]

Government R&D procurement plays a particularly important role in new, small, high-technology firms, which usually have limited profits and

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[35] Hall, Bronwyn, "R&D Tax Policy during the Eighties: Success or Failure," prepared for the National Bureau of Economic Research Tax Policy Conference, November 17, 1992, cited in U.S. National Science Board, *Science & Engineering Indicators—1993*, NSB 93–1 (Washington, D.C.: U.S. Government Printing Office, December 1993), 119.

[36] Roy Rothwell and Walter Zegveld, *Industrial Innovation and Public Policy* (Westport, Conn.: Greenwood Press, 1981), 52–53.

[37] Richard R. Nelson, "Incentives for Entrepreneurship and Supporting Institutions" in Bela Balassa, Herbert Giersch, eds., *Economic Incentives* (New York: St. Martin's Press, 1986), 184–185.

Rationale for Government Involvement

In the absence of government involvement, would there be sufficient innovation from a social point of view? The answer is "no" for a number of reasons. The first and perhaps most important reason is that firms by themselves do not always have enough incentive to innovate because the innovating firms cannot capture enough of the benefits of their innovations. The difference between the private rate of return and the social rate of return is especially pronounced for basic research and for public goods that are of special governmental interest (e.g., defense and public health). "In fact, estimates find that innovating businesses capture less than half of the social returns to their R&D."[33]

Innovation involves risk, some of which can be in the technology and its cost (for example, a space station) or in the vagaries of its potential market (such as substitutes for oil). The rule of thumb in venture capital is that one out of ten investments will be a real winner and two or three of those investments will show modest profits; this is when the investment is typically made after the prototype stage. Of one group of R&D projects studied, only 7.2 percent produced a profit.[34] In spite of the reputed greater willingness of some small firms to bet the future of the firm on a single innovation, there is a level of risk that is more tolerable for government than for any one firm, large or small. The size of government means that a number of independent risks can be borne, with the law of averages increasing the probability that one or more endeavors will have positive results. This reason for government involvement in innovation is particularly applicable to the funding of basic research, since the earlier the funding, the greater the risk.

Another argument for government involvement is that there may be certain projects that are simply too large for any one firm, or even a consortium of firms, to undertake. The space station or the human genome project may be examples of this. In any event, these are some of the rationales for the policies and programs that follow.

Roles of Government in Innovation

There are many ways that the government can influence innovation. Government policies that stimulate economic growth create the conditions for technological progress. Policies that enhance general education and continue sponsorship of a strong science base at all levels of education are also prudent economic policies. Government practices can further encourage innovation by giving appropriate attention to market imperfections affecting small firms who are efficient innovators but may be less able to capture the economic gain from their innovations. Creating a more competitive environment may yield a large social payoff.

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[33] U.S. Council of Economic Advisers, *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, February 1994), 44.

[34] Edwin Mansfield, et al., *Research and Innovation in the Modern Corporation* (New York: Norton, 1971) cited in Thomas Gallagher, *Small Business Taxation, Capital Formation, and Innovation*, report no. 80–120E, prepared by the Congressional Research Service (Washington, D.C.: U.S. Government Printing Office, October 1980), 125.

Licenses granted are a more important source of operating income for small enterprises. Eighty percent of large enterprises granting licenses earn 5 percent or less of their operating income from the licenses granted, but 61 percent of small enterprises earn 6 percent or more of their operating income from the licenses granted.

University Relationships

New small technology-based firms are much more likely to be formed in metropolitan areas where there are already technology-intensive universities, nonprofit research institutions, and technology-intensive industrial firms.[28]

Small business has an important role in bringing basic research to the marketplace. According to a study by Mowery and Rosenberg, "The large basic research establishments in universities, government, and a number of private firms served as important 'incubators' for the development of innovations that 'walked out the door' with individuals who established firms to commercialize them. . . . Indeed, high levels of labor mobility within regional agglomerations of high-technology firms have served both as an important channel for technology diffusion and as a magnet for other firms in similar or related industries." [29]

Another SBA study analyzed research relationships with universities.[30] These relationships were one of three kinds: using faculty as consultants, contracting for research, or using graduate students as research assistants. The most popular reason (of six possible choices) for having a research relationship with a university was gaining access to students as future employees. This was cited by 84 percent of the large firms with research relationships and 65 percent of the small firms. The other choices, in descending order, were product development, problem solving in production processes, the use of university facilities other than computers, the importance of federal tax incentives as a motivation for collaborative research, and the use of university computing facilities. Almost all firms were satisfied with their relationships.

Compared with large firms, small firms appear to be able to transfer knowledge gained from external research associations more effectively, and thus to increase the returns to their total R&D activities. The rate of return on

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[28] Stephen Geoffrey Graham, *The Determinants of the Geographical Distribution of the Formation of New and Small Technology-Based Firms* (Michigan State University, Department of Finance and Insurance, Ph.D. dissertation, 1981).

[29] David C. Mowery and Nathan Rosenberg, "The U.S. National Innovation System" in Richard R. Nelson, ed., *National Innovation Systems: A Comparative Analysis* (New York: Oxford University Press, 1993), 48–49. Mowery and Rosenberg define "innovation" differently, since for them it is possible to have an "innovation" without commercialization.

[30] Albert N. Link and John Rees, *Firm Size and External Research Relationships*, report no. PB93–115145, prepared by Link and Rees for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, December 1992). Firms in the study had 20 or more employees. The average small firm had 122 employees, compared with 33,121 at the average large firm. Firms with fewer than 100 employees devoted 13.3 percent of their sales to R&D, while the figure for firms with more than 10,000 employees was 5.0 percent. R&D personnel as a percentage of total employment ranged from 16.1 percent for firms with fewer than 100 employees to 7.9 percent for firms with more than 10,000 employees.

Table 3.3. *Basic Research, Applied Research, and Development in Industry, 1990 (Millions of Dollars)*

	Firms With		
	Fewer Than 500 Employees	500 Employees or More	All Firms
Basic Research:			
Funds from All Sources	392	2,970	3,362
Federal Funds	119	[1] 821	940
Nonfederal Funds	273	[1] 2,149	2,422
Applied Research:			
Funds from All Sources	[1] 1,796	16,448	18,244
Federal Funds	[1] 328	[1] 3,723	4,051
Nonfederal Funds	[1] 1,468	[1] 12,725	14,193
Development:			
Funds from All Sources	[1] 4,581	53,904	58,485
Federal Funds	[1] 275	17,774	18,049
Nonfederal Funds	[1] 4,306	36,130	40,436
Total Distributed:			
Funds from All Sources	[1] 6,769	[1] 73,322	[1] 80,091
Federal Funds	[1] 722	[1] 22,318	[1] 23,040
Nonfederal Funds	[1] 6,047	[1] 51,004	[1] 57,051
Not Distributed:			
Funds from All Sources	1,404	22,849	24,253
Federal Funds	268	7,272	7,540
Nonfederal Funds	1,136	15,577	16,713
Total:			
Funds from All Sources	**[1] 8,173**	**96,171**	**104,344**
Federal Funds	**990**	**[1] 29,590**	**30,580**
Nonfederal Funds	**[1] 7,183**	**66,581**	**73,764**

[1] Derived.

Source: Derived from Table B–6 in U.S. National Science Foundation, *Research and Development in Industry: 1990, Detailed Statistical Tables,* NSF 94–304 (Washington, D.C., 1993), 105–107.

Intellectual Property

Innovation can occur with or without intellectual property, (patents, copyrights, trademarks, and trade secrets). While intellectual property is neither necessary nor sufficient for innovation, it can be an important input. It is discussed here because it often follows R&D in the process of innovation, but precedes the bulk of the financing that can be necessary for innovation.

A study of new products found that small firms obtained more patents per sales dollar. This was in spite of the finding that large firms were more likely to patent a discovery, implying that small firms had more discoveries.

Table 3.2. *Companies Performing Research and Development in 1991*

	Firms With		
	Fewer Than 500 Employees	500 Employees or More	All Firms
Companies Performing R&D:			
Total	22,221	2,168	24,389
With Federal Funds	1,309	191	1,500
Conducting Basic Research	109	252	361
R&D Funds (Millions of Dollars):			
Total	[1] 8,786	93,460	102,246
Nonfederal	[1] 7,858	69,080	76,938
Federal	928	[1] 24,380	25,308
Domestic Employment (Thousands)	[1] 1,305	[1] 14,766	16,071
Number of Companies Contracting R&D to Outside Organizations	207	343	550
Company-Financed R&D Contracted to Outside Organizations (Millions of Dollars)	[1] 148	4,171	4,319

	Firms With		
	Fewer Than 1,000 Employees	1,000 Employees or More	All Firms
R&D Scientists and Engineers (Thousands)	[1] 117.6	576.3	693.9
Domestic Net Sales (Millions of Dollars)	[1] 252,724	2,354,198	2,606,922
R&D Funds as Percent of Domestic Net Sales:			
Total R&D	[1] 4.25	[1] 3.89	[1] 3.92
Nonfederal R&D	[1] 3.79	[1] 2.86	[1] 2.95
Federal R&D	[1] 0.46	[1] 1.03	[1] 0.97
R&D Scientists and Engineers as Percent of Domestic Employees	[1] 6.41	[1] 4.05	[1] 4.32

[1] Derived by the U.S. Small Business Administration, Office of Advocacy.

Note: Data were collected for the National Science Foundation by the Bureau of the Census. For each industry, research and development data were collected first for large firms, then for smaller and smaller firms until it was believed that 95 percent of the R&D had been covered. This cutoff point averaged 100 employees.

Source: Derived from Tables A–3, A–7, A–9, A–10, A–12, A–15, A–19, A–20, A–21, A–29, A–39, A–48, A–53, A–54, and A–55 in U.S. National Science Foundation, *Research and Development in Industry: 1991, Detailed Statistical Tables* (Washington, D.C.: U.S. Government Printing Office, forthcoming).

Table 3.1. *Some Important Innovations by U.S. Small Firms in the Twentieth Century*

Air Conditioning	Heart Valve	Portable Computer
Air Passenger Service	Heat Sensor	Prestressed Concrete
Airplane	Helicopter	Prefabricated Housing
Articulated Tractor Chassis	High Resolution CAT Scanner	Pressure Sensitive Cellophane Tape
Artificial Skin	High Resolution Digital X-Ray	Programmable Computer
Assembly Line	High Resolution X-Ray Microscope	Quick-Frozen Food
Audio Tape Recorder	Human Growth Hormone	Reading Machine
Bakelite	Hydraulic Brake	Rotary Oil Drilling Bit
Biomagnetic Imaging	Integrated Circuit	Safety Razor
Biosynthetic Insulin	Kidney Stone Laser	Six-Axis Robot Arm
Catalytic Petroleum Cracking	Large Computer	Soft Contact Lens
Computerized Blood Pressure Controller	Link Trainer	Solid Fuel Rocket Engine
Continuous Casting	Microprocessor	Stereoscopic Map Scanner
Cotton Picker	Nuclear Magnetic Resonance Scanner	Strain Gauge
Defibrillator	Optical Scanner	Strobe Lights
DNA Fingerprinting	Oral Contraceptives	Supercomputer
Double-Knit Fabric	Outboard Engine	Two-Armed Mobile Robot
Electronic Spreadsheet	Overnight National Delivery	Vacuum Tube
Freewing Aircraft	Pacemaker	Variable Output Transformer
FM Radio	Personal Computer	Vascular Lesion Laser
Front-End Loader	Photo Typesetting	Xerography
Geodesic Dome	Polaroid Camera	X-Ray Telescope
Gyrocompass		Zipper

Source: Compiled by the U.S. Small Business Administration, Office of Advocacy.

Innovations per Employee

Small firms produce twice as many product innovations per employee as large firms. By comparing total employment in the 362 industries of the innovating enterprises with the total number of innovations, the SBA study found that there were 2.38 times as many innovations per employee in small firms as in large firms.[19] A previous study had estimated a ratio of 2.45 for a smaller group of 635 innovations in the 1970s.[20]

Significance of Innovations

Small firms also produce about twice as many *significant* innovations per employee as large firms. The SBA innovations were assigned a level of signifi-

[19] The employment measure includes all jobs in both small and large firms in the industries in question, whether or not the firms were associated with any of the innovations.

[20] Earl E. Bomberger, *The Relationship Between Industrial Concentration, Firm Size, and Technological Innovation,* report no. PB82–226119, prepared by Gellman Research Associates for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, May 1982). See also Gellman Research Associates, *Indicators of International Trends in Technological Innovation* (Washington, D.C.: National Science Foundation, April 1976).

miniature versions of large ones: employees tend to have greater responsibilities in small firms, which widens their vision. Small firm employees, understanding more of what is going on, are more able to contribute to the improvement of products, services, processes, and management. In small firms each worker's influence is greater, and suggestions have a greater chance of acceptance.[11]

Because of their size, small companies have an internal communications advantage over large firms.[12] It has been observed that in the United States, "One of the reasons for the relatively successful performance of small entrepreneurial firms in areas where development costs were low was that they were able to overcome the internal communication and cultural barriers much more easily through the integration of research, production and marketing by the innovative entrepreneur working with a few colleagues."[13] In complex organizations, "the overriding problem often is maintaining an adequate commitment to a new idea in the face of internal obstacles to change. There is an understandable reluctance to depart from what has been a successful pattern of business."[14]

Large Firm Innovators

Just as small firms have inherent strengths and incentives to innovate, large firms have advantages. With their greater division of labor, large firms have a greater abundance of detailed knowledge, which, if properly coordinated, can be an added stimulus to innovation. Large firms can more often support innovative research for new and improved products from profits earned on existing products, or can raise money more easily in the financial markets. There are sometimes economies of scale in research and development.[15] The fixed costs of research and development can be spread over more units in a large firm. Greater size also means more market power, which allows a company to price a new product or service to recover its research and development costs more quickly. With their greater resources, large firms can reduce

[11] Jacob Schmookler devoted most of his professional life to the study of patents and their sources. These thoughts are from "The Size of Firm and the Growth of Knowledge," Statement to the Senate Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, May 26, 1965, printed in Zvi Griliches and Leonid Hurwicz, eds., *Patents, Invention, and Economic Change: Data and Selected Essays* (Cambridge, Mass.: Harvard University Press, 1972), 44–45.

[12] Schmookler found that about 20 percent of the inventions patented in 1953 originated from employees in the operating end of industry. These individuals, almost without exception, were employed by small and medium-sized firms. See Jacob Schmookler, "Inventors Past and Present," *Review of Economics and Statistics*, 39, no. 3 (August 1957), 321–333.

[13] Christopher Freeman, "Japan: A New National System of Innovation?" in Giovanni Dosi, Christopher Freeman, Richard Nelson, Gerald Silverberg, and Luc Soete, eds., *Technical Change and Economic Theory* (London, England: Pinter Publishers, 1988), 337.

[14] U.S. Panel on Invention and Innovation, *Technological Innovation: Its Environment and Management* (Washington, D.C.: U.S. Government Printing Office, January 1967), 28.

[15] "Scale economies in inventive activity may well exist, but it seems that the combined effect of the other factors dominates the innovative process." See Stanislaw Gomulka, *The Theory of Technological Change and Economic Growth* (London, England: Routledge, 1990), 49.

What is Innovation?

An innovation is defined as the introduction into the marketplace of the results of a new idea. Innovation serves a need not previously served, or serves a need previously satisfied but in a superior way. An innovation may be embodied in a new or improved product or service, or it may be a process or management improvement. Innovations are many and varied, full and partial, spectacular and modest.

Innovation is the result of a process that often includes acquiring technical knowledge, personnel, equipment, and funding; proving a concept; building a prototype; and developing the final product or operational process. It may be the result of a research and development process that includes investigating fundamental phenomena (basic research), determining and exploiting the practical potential of scientific discoveries (applied research), and engineering a product or process for production (development). These stages of R&D may not all occur in the same location.

Innovation can occur with or without research and development, patents, licensing, or extensive marketing. A patent will not necessarily reach the marketplace; an innovation will not necessarily be patented. R&D is often an input to innovation; patents are another input that may occur later in the process.

Types of Innovation

Innovations may be classified into four categories: product, service, process, and management. A product innovation is simply a new or changed product that offers more to the purchaser (for example, a cellular phone). A service innovation is a new or altered activity organized for sale; it may or may not be accompanied by a product innovation.[1] A process innovation is a new way of combining physical inputs (labor, plant, equipment, and materials) to produce a product or provide a service.[2] A management innovation is a new way of organizing the resources of the firm. It is not just the ongoing results of good management, but a new technique.[3] Among small firm[4] early adoptions, service innovations are the most numerous (38 percent), followed by product innovations (32 percent), process innovations (17 percent), and management innovations (12 percent).[5]

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[1] Overnight national delivery was initiated by Federal Express, a firm that received SBA assistance.

[2] An example is the use of fiber optics in telecommunications.

[3] General Electric had the first computerized payroll.

[4] Unless otherwise stated, small firms have fewer than 500 domestic employees; large firms have 500 or more domestic employees.

[5] Earl E. Bomberger, *A Survey of Innovative Activity*, report no. PB94–107463, prepared by Gellman Research Associates for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, July 1993). This study defined early adoption as being first in the respondent's local area, so it may give greater emphasis to service and management innovations.

Table 2.25 *Nonemployer Health Insurance Coverage and Firm Size, 1993 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm						Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			**Total**
	<10	10–24	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Other Private	1.8	1.1	1.2	0.9	2.2	6.7	2.2	0.7	2.0	12.1	9.3	6.2	15.5	**27.6**
Medicaid	0.5	0.4	0.4	0.3	0.8	2.3	0.6	0.0	0.1	3.1	10.2	6.0	16.2	**19.3**
Medicare	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.0	0.1	0.9	0.0	7.1	7.1	**8.0**
CHAMPUS/CHAMPVA	0.2	0.2	0.2	0.1	0.4	1.2	1.2	0.0	0.2	2.4	0.1	0.9	0.9	**3.4**
Other Private and Public	0.4	0.2	0.2	0.2	0.3	1.1	0.6	0.1	0.4	2.4	2.3	17.7	20.1	**22.4**
Multiple Public	0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.4	1.1	3.9	5.0	**5.4**
Total	**3.1**	**1.9**	**2.2**	**1.7**	**3.7**	**12.1**	**4.8**	**0.8**	**2.9**	**21.3**	**23.0**	**41.7**	**64.7**	**86.0**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

Table 2.23 *Health Insurance Coverage of the Population, 1989 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm					Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			Total
	<25	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Covered by Own Employer	7.5	8.1	9.6	27.2	52.4	14.4	1.8	1.8	70.3	0.0	0.0	0.0	**70.3**
Covered by Other's Employer													
<25	1.3	0.3	0.2	0.6	2.4	0.6	0.2	0.5	3.7	4.6	1.9	6.5	**10.2**
25–99	0.7	0.5	0.2	0.4	1.9	0.4	0.1	0.2	2.6	3.5	1.3	4.8	**7.4**
100–499	0.9	0.4	0.5	0.7	2.4	0.6	0.1	0.3	3.4	4.5	1.7	6.2	**9.6**
500+	3.0	1.3	1.2	3.5	8.9	2.1	0.2	1.2	12.4	16.5	6.1	22.6	**35.0**
Total	6.0	2.5	2.1	5.3	15.9	3.8	0.6	2.2	22.4	30.8	11.1	41.9	**64.3**
Nonemployer Coverage	4.5	1.9	1.5	3.6	11.5	4.7	0.7	2.6	19.6	18.7	38.0	56.7	**76.4**
Not Covered	5.8	2.7	1.9	3.7	14.1	2.9	0.2	1.9	19.1	7.3	6.3	13.6	**32.7**
Total	**23.7**	**15.2**	**15.1**	**39.8**	**93.8**	**25.7**	**3.4**	**8.5**	**131.4**	**56.9**	**55.5**	**112.3**	**243.7**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1989.

Table 2.21 *Health Insurance Coverage of the Population, 1991 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm					Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			Total
	<25	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Covered by Own Employer	7.3	7.8	9.8	27.4	52.4	14.6	1.6	1.6	70.3	0.0	0.0	0.0	**70.3**
Covered by Other's Employer													
<25	1.2	0.3	0.2	0.7	2.3	0.5	0.2	0.5	3.5	4.3	1.7	6.0	**9.5**
25–99	0.6	0.4	0.2	0.5	1.8	0.4	0.1	0.2	2.5	3.5	1.3	4.7	**7.2**
100–499	0.9	0.5	0.5	0.7	2.6	0.5	0.1	0.3	2.4	4.7	1.7	6.4	**9.8**
500+	2.9	1.3	1.1	3.5	8.9	2.1	0.2	1.2	12.6	16.3	5.7	22.1	**34.6**
Total	5.7	2.5	2.0	5.5	15.9	3.5	0.6	2.2	22.3	30.3	10.5	40.8	**63.1**
Nonemployer Coverage	4.8	1.9	1.6	3.8	12.1	4.7	0.8	3.1	20.6	21.0	39.2	60.2	**80.8**
Not Covered	6.3	2.9	2.0	3.9	15.1	2.9	0.3	2.1	20.4	7.5	6.8	14.3	**34.7**
Total	**24.1**	**15.1**	**15.6**	**40.6**	**95.4**	**25.8**	**3.3**	**9.1**	**133.5**	**58.7**	**56.7**	**115.4**	**248.9**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1991.

Table 2.19 *Health Insurance Coverage of the Population, 1993 (Millions of Persons)*

Group	Wage-and-Salary Workers[1] by Employment Size of Firm						Other Wage-and-Salary Workers[2]	Self-Employed		All Workers	Nonworkers			Total
	<10	10–24	25–99	100–499	500+	Total		Incorporated	Unincorporated		Age <16	Age 16+	Total	
Covered by Own Employer	3.0	3.7	7.8	9.5	26.3	50.3	15.0	1.5	1.4	68.2	0.0	0.0	0.0	**68.2**
Covered by Other's Employer														
<10	0.4	0.2	0.2	0.1	0.3	1.2	0.3	0.1	0.3	2.2	2.4	1.0	3.4	**5.4**
10–24	0.2	0.2	0.1	0.1	0.3	0.9	0.2	[3] 0.1	0.2	1.4	1.7	0.6	2.3	**3.7**
25–99	0.4	0.3	0.4	0.2	0.5	1.8	0.3	[3] 0.1	0.3	2.5	3.5	1.2	4.7	**7.2**
100–499	0.5	0.3	0.4	0.5	0.7	2.4	0.5	[3] 0.1	0.4	3.4	4.9	1.5	6.4	**10.0**
500+	1.5	1.1	1.4	1.2	3.5	8.7	2.1	0.3	1.2	12.4	16.3	5.8	22.1	**34.5**
Total	3.0	2.1	2.5	2.1	5.4	15.1	3.5	0.7	2.4	22.2	30.2	10.3	38.9	**62.6**
Nonemployer Coverage	3.1	1.7	2.2	1.6	3.9	12.7	4.8	0.8	2.9	21.2	23.0	41.7	64.7	**86.0**
Not Covered	3.9	2.7	3.2	2.4	4.4	16.6	3.2	0.3	2.3	22.4	7.3	7.8	15.1	**37.4**
Total	**13.2**	**10.6**	**15.8**	**15.7**	**39.9**	**95.2**	**26.4**	**3.4**	**8.9**	**133.9**	**60.5**	**59.8**	**120.3**	**254.2**

[1] Private nonagricultural wage-and-salary workers age 16 and over.
[2] Government, agricultural, and private household wage-and-salary workers.
[3] Fewer than 50 observations.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

1988, so that it has been possible to estimate health insurance breakdowns by firm size and employment status.[26] Under new procedures, also beginning in 1988, Census included questions on overall health insurance coverage to better gain information about the health insurance status of each household member.[27]

Table 2.19 contains health insurance coverage status and firm size from the March CPS for 1993. Coverage status categories pertain to workers 1) covered through their own employer; 2) covered by other insurance, private (another worker's employer or purchased) or government; and 3) not covered.

Another CPS that permits measurement of the uninsured is the Employee Benefits Supplement to the May CPS in 1979, 1983, and 1988 and the April 1993 CPS. A major limitation of these supplements is that they provide information only about workers, not the entire population. It is not possible to obtain measurements of the total uninsured population from this data source.

Because of changes in the way the questions concerning health care were asked in 1988, it is of limited value to obtain estimates of the insured and uninsured prior to 1988 from the March CPS. However, it is possible to obtain estimates of health insurance coverage for prior years for workers using the May 1979, 1983, and 1988 CPS and the April 1993 CPS employee benefits supplement.

Many useful data items are included in the May and April CPS surveys. The basic May (April) survey has the standard demographic variables, along with weekly earnings and hours of work, industry and occupation. The May Supplement contains questions on firm size, tenure with present employer, and fringe benefits. Individuals are asked whether they are covered by an employer-provided health insurance plan.[28]

There are major differences in the findings from the March and May (April) CPS. For example, according to the March 1988 CPS, only 27.1 percent of workers in the smallest firms with fewer than 25 employees obtained health insurance through their own employer during the previous year, compared with 37.1 percent in the May 1988 CPS.

There are several possible explanations for these differences between the March and May CPSs. One possible explanation may be underreporting of health insurance coverage in the March CPS because respondents may be answering the questions based on their current rather than previous year's health insurance status. This does not explain the entire difference between the 1988 March and May CPSs.

Survey of Income and Program Participation

The SIPP is a longitudinal survey that includes questions on employment and insurance status, as well as demographic questions. Specifically, the SIPP is

[26] Berger, et al. *Measuring the Uninsured*, 10.

[27] U.S. General Accounting Office, *Health Insurance Coverage: A Profile of the Uninsured in Selected States* (Washington, D.C.: U.S. General Accounting Office, February 1991), 10–11.

[28] Berger, et al., *Measuring the Uninsured*, 10.

Table 2.18 *Health Insurance Coverage Rates of Wage-and-Salary Workers and the Self-Employed from Any Source by Economic Characteristics, 1993*

Economic Group	Private Nonagricultural Wage-and-Salary Workers Age 16 and Over	Self-Employed
1–20 Hours per Week	82.7	82.3
21–34 Hours per Week	76.0	71.8
35+ Hours per Week	83.4	78.9
1–26 Weeks Worked	72.0	74.1
27–49 Weeks Worked	74.0	72.6
50–52 Weeks Worked	86.8	80.5
$5.00 or less per Hour	67.7	77.3
$5.01–$10.00 per Hour	77.8	77.1
$10.01+ per Hour	92.5	93.6
Mining	93.6	*96.0
Construction	68.3	67.1
Manufacturing–Durable	88.9	81.8
Manufacturing–Nondurable	85.0	84.6
Transportation, Communications and Public Utilities	86.8	67.3
Wholesale Trade	88.9	83.7
Retail Trade	75.9	76.6
Finance, Insurance, and Real Estate	90.2	88.8
Services	83.3	80.9
Managerial/Professional	92.8	85.5
Technical, Sales	87.2	80.2
Service	68.6	72.4
Precision Production/Craft	78.7	64.8
Operators, Fabricators, and Laborers	76.1	70.7
Farming, Forestry, and Fishing	59.4	*53.5
All Workers	**82.6**	**78.6**

*Fewer than 50 observations.

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

The high proportion of uninsured workers in small businesses is the result of a combination of factors including worker and firm characteristics that affect the availability of employer-provided insurance, the eligibility of workers for insurance if offered, and the worker's decision to participate in an employer-provided plan if offered.

The Self-Employed

The characteristics of the self-employed with and without health insurance vary significantly. In addition, there are important similarities and differences in the characteristics of the uninsured when the self-employed and wage-and-salary workers are compared.

Demographic Characteristics

Women who are self-employed are significantly more likely to have health insurance than men—a pattern similar to that found for wage-and-salary workers (Table 2.17). Self-employed Hispanics are more likely than other demographic groups analyzed to be uninsured.

The self-employed who are younger than 25 are significantly less likely to have health insurance than are their wage-and-salary counterparts or older self-employed individuals (Table 2.17).

The self-employed with low levels of education are more likely to be uninsured, a pattern that is similar to that for wage-and-salary workers.

Economic Characteristics

Like their wage-and-salary counterparts, the self-employed in the construction and retail trade sectors are most likely to be uninsured (Table 2.18). However, the self-employed in the transportation, communications, and public utilities industry are significantly more likely to be uninsured than wage-and-salary workers in this sector. The self-employed in service occupations are more likely to have health insurance from any source than are their wage-and-salary counterparts.

The relationship between part-time work and health insurance is similar between the self-employed and wage-and-salary workers. In both groups, those working between 21 and 34 hours per week are least likely to have health insurance from any source.

Conclusions

The lack of availability of health insurance is a significant and growing problem in the United States. According to 1993 data from the Census Bureau, 14.7 percent or 37.4 million persons lacked health insurance of any kind. Between 1988 and 1993, the number of uninsured increased from 31.0 million to 37.4 million people and the proportion of the population that is uninsured increased from 12.9 percent to 14.7 percent.

Almost 60 percent (22.4 million) of the total uninsured in the United States are working.[25] Workers in small firms with fewer than 500 employees represent almost three-quarters (16.6 million) of all the working uninsured.

[25] Other data linking workers and family members indicate that about 85 percent of the uninsured live in a family headed by a worker. See *EBRI Notes, op. cit.*

Table 2.16 *Health Insurance Coverage Rates from Any Source by Firm Size and Economic Characteristics, Private Nonagricultural Wage-and-Salary Workers Age 16 and Over, 1993 (Percent)*

Economic Characteristics	Total	Employment Size of Firm								
		<10	10–24	<25	25–99	100–499	500+	<100	100+	<500
Mining	93.6	*81.5	*81.3	*81.3	88.1	93.0	98.4	85.2	97.0	88.2
Construction	68.3	59.0	62.1	60.3	76.1	74.5	78.9	65.5	74.7	67.0
Manufacturing-Durable	88.9	68.4	71.1	69.9	82.1	89.3	94.7	77.0	93.2	82.4
Manufacturing-Nondurable	85.0	70.6	69.3	69.9	73.2	84.9	92.5	71.9	90.0	77.8
Transportation, Communications, and Public Utilities	86.8	63.9	71.8	68.0	79.7	84.5	93.4	73.7	91.8	77.3
Wholesale Trade	88.9	80.9	87.1	84.3	86.0	91.2	93.0	85.1	92.3	86.9
Retail Trade	75.9	65.1	68.3	66.6	73.9	78.7	81.8	69.2	81.2	71.1
Finance, Insurance, and Real Estate	90.2	77.5	81.3	79.3	88.9	90.3	94.4	83.5	93.4	85.7
Services	83.3	74.5	79.2	76.4	81.4	85.9	88.7	78.2	87.8	80.4
Managerial/Professional	92.8	83.2	87.8	85.3	91.9	94.1	95.6	88.3	95.2	90.2
Technical, Sales	87.2	79.2	81.8	80.4	85.7	89.4	90.4	82.4	90.2	84.3
Services	68.6	61.0	62.2	61.5	65.1	71.3	76.5	62.8	62.8	64.8
Precision Production/Craft	78.7	57.6	66.0	61.2	78.2	85.8	91.0	67.3	89.4	71.9
Operators, Fabricators, and Laborers	76.1	57.7	60.9	59.3	69.7	78.2	86.0	64.5	83.5	69.2
Farming, Forestry, and Fishing	59.4	47.8	*65.1	*54.3	*75.9	*64.3	*59.8	58.6	61.4	59.3
1–20 Hours per Week	82.7	80.1	81.6	80.6	84.9	84.2	83.8	81.8	83.9	82.2
21–34 Hours per Week	76.0	72.1	73.3	72.5	73.8	80.0	78.7	73.0	79.0	74.4
35 Hours or More per Week	83.4	67.1	72.9	69.9	79.7	85.5	90.7	74.2	89.2	77.8

Table 2.15 *Employer-Provided Coverage Rates by Firm Size and Economic Characteristics, Private Nonagricultural Wage-and-Salary Workers Age 16 and Over, 1993 (Percent)*

Economic Characteristics	Total	Employment Size of Firm								
		<10	10–24	<25	25–99	100–499	500+	<100	100+	<500
Mining	83.5	*43.8	*52.1	*49.2	*80.6	76.5	94.7	67.1	90.1	70.7
Construction	44.4	21.6	37.0	27.9	56.3	61.3	61.3	37.3	61.2	41.4
Manufacturing-Durable	77.0	36.5	47.4	42.6	69.7	77.7	86.0	58.3	83.7	66.8
Manufacturing-Nondurable	69.0	34.7	42.0	38.8	53.3	69.5	80.9	47.7	77.3	57.5
Transportation, Communications, and Public Utilities	71.8	21.8	44.2	33.5	58.7	67.8	84.6	45.8	81.6	53.0
Wholesale Trade	68.0	44.1	58.8	52.2	65.5	74.8	78.2	58.3	76.9	63.1
Retail Trade	35.7	16.2	22.5	19.2	34.8	44.4	44.5	24.7	44.5	28.7
Finance, Insurance, and Real Estate	65.9	36.6	48.0	42.1	64.0	67.9	74.6	51.7	73.0	57.0
Services	50.2	25.1	39.3	30.7	48.9	58.3	65.5	37.4	61.7	43.2
Managerial/Professional	70.7	40.3	50.8	45.2	66.8	76.3	80.5	55.0	79.3	62.1
Technical, Sales	55.2	25.3	41.8	32.6	54.3	62.1	64.8	40.8	64.1	46.8
Services	26.5	9.7	12.7	11.3	24.7	36.7	38.3	16.0	37.8	20.8
Precision Production/Craft	63.2	27.5	44.4	34.6	64.7	74.1	82.3	45.5	79.8	52.6
Operators, Fabricators, and Laborers	55.7	20.9	34.2	27.5	47.9	60.5	70.4	37.6	67.1	45.5
Farming, Forestry, and Fishing	26.8	*13.3	*25.8	*18.0	*35.0	*40.6	*38.6	*21.4	*39.3	23.9
1–20 Hours per Week	10.4	7.8	7.2	7.6	9.4	10.4	13.8	8.0	13.0	8.4
21–34 Hours per Week	21.3	11.3	14.8	12.6	19.7	26.6	28.1	15.0	27.7	17.3
35 Hours or More per Week	63.2	30.6	44.0	37.0	58.1	68.1	76.2	46.2	73.8	53.2

Table 2.14 *Health Insurance Coverage Rates From Any Source by Firm Size and Demographic Characteristics, Private Nonagricultural Wage-and-Salary Workers Age 16 and Over, 1993 (Percent)*

		Employment Size of Firm								
Demographic Group	Total	<10	10–24	<25	25–99	100–499	500+	<100	100+	<500
Males	80.3	62.8	69.6	65.9	78.4	82.6	88.6	71.1	86.9	74.4
Females	85.2	78.6	79.4	79.0	81.2	87.6	89.4	79.8	88.9	82.1
Age 16–24	74.0	65.7	70.9	68.1	72.8	75.2	78.7	69.8	77.8	71.0
Age 25–44	82.5	67.6	72.5	69.8	78.8	85.6	89.9	73.5	88.7	77.2
Age 45–64	88.1	76.8	79.4	78.0	85.8	89.1	93.4	81.2	92.3	83.6
Age 65 and Over	96.7	98.1	96.1	97.5	95.2	96.6	96.7	96.7	96.7	96.7
Whites	84.1	72.3	76.0	73.9	81.3	87.4	90.3	76.8	89.5	79.8
Blacks	72.1	56.2	59.0	57.4	66.1	69.2	80.6	61.5	77.6	64.1
Others	76.9	58.0	67.0	62.3	75.8	77.2	86.6	67.5	83.7	70.4
Hispanics	61.5	44.3	46.5	45.3	53.6	70.0	76.3	48.9	74.2	54.2
Others	84.4	73.2	77.2	75.0	82.7	86.3	89.9	78.0	88.9	76.3
Married, Spouse Present	89.0	80.3	81.0	80.5	86.4	91.0	93.9	82.9	93.1	85.3
Others	74.7	59.8	67.0	63.1	72.2	77.4	82.4	66.7	81.0	69.6
Less than High School Graduate	69.0	57.8	58.8	58.2	64.4	74.9	80.2	60.5	78.3	64.0
High School Graduate	80.5	68.0	70.5	69.1	79.1	83.1	87.3	73.1	86.1	75.9
Some College	84.9	75.5	81.4	78.2	82.2	86.0	89.3	79.8	88.4	81.5
Bachelor's Degree or More	92.6	84.7	88.6	86.5	90.5	94.0	95.1	88.3	94.8	90.2

Table 2.13 *Employer-Provided Coverage Rates by Firm Size and Demographic Characteristics, Private Nonagricultural Wage-and-Salary Workers Age 16 and Over, 1993 (Percent)*

		Employment Size of Firm								
Demographic Group	Total	<10	10–24	<25	25–99	100–499	500+	<100	100+	<500
Males	58.7	26.9	40.6	33.1	55.7	65.1	72.3	42.6	70.3	48.9
Females	46.3	18.9	29.1	23.4	41.6	55.4	58.5	30.3	57.6	37.5
Age 16–24	23.2	12.1	15.3	13.6	24.0	28.8	28.5	17.4	28.6	20.0
Age 25–44	59.1	25.6	41.4	32.6	55.6	66.3	72.4	42.1	70.6	49.4
Age 45–64	64.4	27.8	43.9	34.9	59.5	70.2	78.5	45.1	76.3	52.7
Age 65 and Over	38.6	25.2	25.1	25.2	36.0	41.3	55.6	28.6	50.1	31.3
Whites	53.9	23.6	36.2	29.2	50.5	63.0	67.1	37.6	66.0	44.6
Blacks	45.8	18.0	23.9	20.7	41.7	44.8	56.9	30.5	53.7	35.3
Others	51.8	19.1	32.3	25.5	47.0	52.1	65.2	33.7	61.0	39.3
Hispanics	39.5	13.9	21.5	17.4	36.0	50.1	55.5	25.5	53.7	31.6
Others	54.1	23.9	36.6	29.5	51.1	61.4	66.5	38.1	65.1	44.8
Married, Spouse Present	58.6	25.5	38.5	31.2	54.5	65.4	72.5	40.5	70.5	47.9
Others	45.9	20.1	31.5	25.2	44.1	54.4	56.9	32.8	56.2	38.6
Less than High School Graduate	31.2	11.8	18.2	14.7	30.1	45.1	41.9	20.4	43.0	26.4
High School Graduate	52.7	23.0	34.1	27.7	51.8	61.2	65.4	37.4	64.2	44.0
Some College	51.5	23.0	37.4	29.5	47.0	57.5	63.3	36.3	61.7	42.3
Bachelor's Degree or More	70.5	37.4	53.4	44.9	65.5	74.0	80.2	54.2	78.6	60.9

Table 2.12 *Health Insurance Coverage of the Nonworking Population, 1993 and 1988 (Millions)*

	1993			1988		
	Age 0–15	Age 16+	**Total**	Age 0–15	Age 16+	**Total**
Covered by Own Employer	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Covered by Other's Employer						
<10	2.4	1.0	**3.4**	NA	NA	**NA**
10–24	1.7	0.6	**2.3**	NA	NA	**NA**
<25	4.1	1.6	**5.7**	4.5	1.9	**6.4**
25–99	3.5	1.2	**4.7**	3.7	1.4	**5.1**
100–499	4.9	1.5	**6.4**	4.8	1.9	**6.7**
500+	16.3	5.8	**22.1**	16.3	6.4	**22.6**
Total	30.2	10.3	**40.5**	31.0	11.7	**42.6**
Nonemployer Coverage	23.0	41.7	**64.7**	18.0	37.8	**55.8**
Not Covered	7.3	7.8	**15.1**	7.2	6.3	**13.5**
Total	**60.5**	**59.8**	**120.3**	**56.1**	**55.8**	**111.9**

NA = Not available.
Note: Figures may not add to totals because of rounding.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988 and March 1993.

Geographic Distribution

Wage-and-salary workers in the Northeast and Midwest are more likely to have employer-provided or other health coverage than their counterparts in the South and West. Workers in the South are least likely to have employer-provided or any other health insurance (Tables 2.13 and 2.14). Only in intermediate-sized firms, firms with between 100 and 499 employees, are workers in the West more likely to have employer-provided coverage than workers in the Midwest.

Workers in metropolitan areas, especially those in small firms, are more likely than their counterparts in nonmetropolitan areas to have employer-provided health insurance (Table 2.13). However, there is virtually no difference between nonmetropolitan and metropolitan areas in the proportion of uninsured workers within firm size categories (Table 2.14).

Workers in non-central city areas are more likely to have employer-provided health insurance than workers living in central cities, although the differences are not great (Table 2.13). The level of uninsurance differs more significantly: 33.1 percent of workers living in central cities and working in firms

Table 2.10 *Health Insurance Coverage of Wage-and-Salary Workers and the Self-Employed, 1993 (Millions)*

	Wage-and-Salary Workers*	Self-Employed	
		Incorporated	Unincorporated
Covered by Own Employer	50.3	1.5	1.4
Covered by Other's Employer			
<10	1.2	0.1	0.3
10–24	0.9	0.1	0.2
25–99	1.8	0.1	0.3
100–499	2.4	0.1	0.4
500+	8.7	0.3	1.2
Total	15.1	0.7	2.4
Nonemployer Coverage	12.7	0.8	2.9
Not Covered	16.6	0.3	2.3
Total	**95.2**	**3.4**	**8.9**

*Private nonagricultural wage-and-salary workers age 16 and over.

Note: Figures may not add to totals because of rounding and missing firm size data.

Source: Tabulations by Carolyn Looff & Associates of data from the Current Population Survey, March 1993.

Significant differences exist in employer-provided coverage and coverage from any source by race or ethnic background. For example, while 37.6 percent of white workers at firms with fewer than 100 employees receive health insurance through their employer, only 30.5 percent of black workers have such coverage (Table 2.13). At firms with more than 100 workers, 66.0 percent of white workers and 53.7 percent of black workers have employer-provided coverage. The same pattern holds for coverage from any source—76.8 percent of white workers and 61.5 percent of black workers at smaller firms (fewer than 100 workers) have any health insurance, and 89.5 percent of whites and 77.6 percent of blacks at large firms (100+ workers) have any health insurance (Table 2.14). Similar differences exist between Hispanic and non-Hispanic workers.

Married workers with spouse present are more likely than others to have health insurance. At firms with fewer than 100 workers, married workers are 7.7 percent (40.5 percent versus 32.8 percent) more likely to have employer-provided coverage than are other workers (Table 2.13). This difference increases to 20.2 percent for coverage from any source (82.9 percent versus 66.7 percent), probably because many married workers at smaller firms are covered under their spouse's policy (Table 2.14).

Differences in educational attainment unsurprisingly are related to differences in health insurance coverage. For example, only 20.4 percent of work-

Table 2.9 *Health Insurance Coverage and the Self-Employed, 1993*

	Self-Employed		
	Unincorporated	Incorporated	**Total**
Covered by Own Employer			
Percent	15.7	44.1	**23.6**
Number (Millions)	1.4	1.5	**2.9**
Covered by Other's Employer			
Percent	27.0	20.6	**25.2**
Number (Millions)	2.4	0.7	**3.1**
Nonemployer Coverage			
Percent	32.6	23.5	**30.1**
Number (Millions)	2.9	0.8	**3.7**
Not Covered			
Percent	25.8	8.8	**21.1**
Number (Millions)	2.3	0.3	**2.6**
Total			
Percent	**100.0**	**100.0**	**100.0**
Number (Millions)	**8.9**	**3.4**	**12.3**

Note: Figures may not add to totals because of rounding.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

surpasses that for men (Table 2.14). This result is not surprising, given that women who are heads of a household are more likely to have children and to qualify for government-provided health insurance.[21]

Young workers between the ages of 16 and 24 tend not be covered by their employer, even in large firms. Based on March 1993 CPS data, only 17.4 percent of workers 16 to 24 years old receive employer-sponsored coverage at firms with fewer than 100 workers; only 28.6 percent get such coverage at firms with 100 or more workers (Table 2.13). Because many young workers take part-time or temporary jobs, these low coverage rates might be expected. Overall coverage rates for young workers range from 65.7 to 78.7 percent in the smallest to largest firm sizes (Table 2.14).

Prime age workers, those 25 to 44 and 45 to 64 years old, have the highest rates of employer-provided coverage. For example, among 45- to 64-year-old

[21] This may, in part, be due to the fact that low-income women with children are eligible to receive Medicaid, which is tied to participation in the aid to families with dependent children (AFDC) program.

Table 2.8 *Health Insurance Coverage of Wage-and-Salary Workers,* 1988 (Millions of Persons)*

Group	Employment Size of Firm					Total
	<25	25–99	100–499	<500	500+	
Covered by Own Employer	7.2	8.2	9.7	25.1	26.7	**51.8**
Covered by Other's Employer						
<25	1.3	0.3	0.3	1.9	0.6	**2.5**
25–99	0.7	0.5	0.2	1.4	0.4	**1.9**
100–499	1.0	0.5	0.5	2.0	0.7	**2.7**
<500	3.0	1.3	1.0	5.3	1.7	**7.1**
500+	3.0	1.2	1.1	5.3	3.4	**8.6**
Total	6.1	2.6	2.1	10.8	5.2	**16.1**
Nonemployer Coverage	4.8	2.0	1.5	8.3	3.2	**11.5**
Not Covered	5.5	2.5	1.9	9.9	3.1	**13.0**
Total	**23.6**	**15.3**	**15.3**	**54.2**	**38.1**	**92.4**

*Private nonagricultural wage-and-salary workers age 16 and over.

Note: Figures may not add to totals because of rounding and missing firm size data.

Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988.

and 2.3). In 1993, members of the nonworking population under 16 and over 16 were almost equally likely to be uninsured (Table 2.12). However, nonworkers 16 and older were much more likely to have nonemployer coverage than the nonworking population under age 16.

Characteristics of the Insured and Uninsured

Who are the working and nonworking uninsured? Demographic and economic information contained in the March CPS permits detailed examination of their characteristics.

Wage-and-Salary Workers

The availability of health insurance to wage-and-salary workers—and their decisions to take advantage of coverage—vary by their demographic, geographic, and economic characteristics.

Table 2.6 *Health Insurance Coverage Rates and Firm Size: Private Nonagricultural Wage-and-Salary Workers, 1988–1993 (Percent)*

Group	Employment Size of Firm									All
	<10	10–24	1–24	25–99	100–499	500+	<100	100+	<500	
Covered by Own Employer										
1993	22.7	34.9	28.2	49.4	60.5	65.9	36.6	64.4	43.4	52.8
1992	24.1	38.5	30.3	49.6	61.3	67.7	37.9	66.0	44.5	54.4
1991	NA	NA	30.4	51.6	63.1	67.6	38.6	66.3	45.6	54.9
1990	NA	NA	31.4	52.6	62.9	68.3	39.8	66.8	46.3	55.7
1989	NA	NA	31.4	55.1	63.9	68.5	39.9	67.2	46.6	55.9
1988	NA	NA	30.6	55.3	63.5	70.0	39.6	68.2	46.3	56.1
Covered by Any Insurance										
1993	70.5	74.5	72.3	79.7	84.7	89.0	75.2	87.8	77.9	82.6
1992	71.6	76.8	73.8	79.7	86.0	89.8	76.1	88.7	78.9	83.6
1991	NA	NA	73.9	80.9	87.2	90.3	76.6	89.4	79.6	84.2
1990	NA	NA	74.9	83.0	86.9	91.1	78.1	90.0	80.6	85.1
1989	NA	NA	75.5	82.3	87.5	90.8	78.1	89.9	80.7	85.0
1988	NA	NA	76.8	83.5	87.6	92.0	79.4	90.7	81.7	86.0

NA = Not available.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1988–March 1993.

Table 2.4 *Health Insurance Coverage of Wage-and-Salary Workers,* 1993 (Percent)*

Group	Total	Employment Size of Firm								
		<10	10–24	1–24	25–99	100–499	500+	<100	100+	<500
Total Workers (Age 16 and Over)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Covered by Own Employer	52.8	22.7	34.9	28.2	49.4	60.5	65.9	36.6	64.4	43.4
Covered by Other's Employer	15.9	22.7	19.8	21.4	15.8	13.4	13.5	19.2	13.5	17.5
Nonemployer Coverage	13.3	23.5	17.9	21.0	13.9	10.2	9.8	18.2	9.9	15.9
Not Covered	17.4	29.5	25.5	27.7	20.3	15.3	11.0	20.7	12.2	22.1

*Private nonagricultural wage-and-salary workers age 16 and over.

Note: Figures may not add to totals because of rounding and missing firm size data.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

Table 2.3 *Health Insurance Coverage of the Population, 1993*

Group	Total	Covered by Own Employer	Covered by Other's Employer	Nonemployer Coverage	Not Covered
Total					
Percent	100.0	26.8	24.6	33.8	14.7
Number (Millions)	254.2	68.2	62.6	86.0	37.4
Working Population					
Percent	100.0	50.9	16.6	15.8	16.7
Number (Millions)	133.9	68.2	22.2	21.2	22.4
Nonworking Population					
Percent	100.0	0.0	32.3	53.8	12.6
Number (Millions)	120.3	0.0	38.9	64.7	15.1

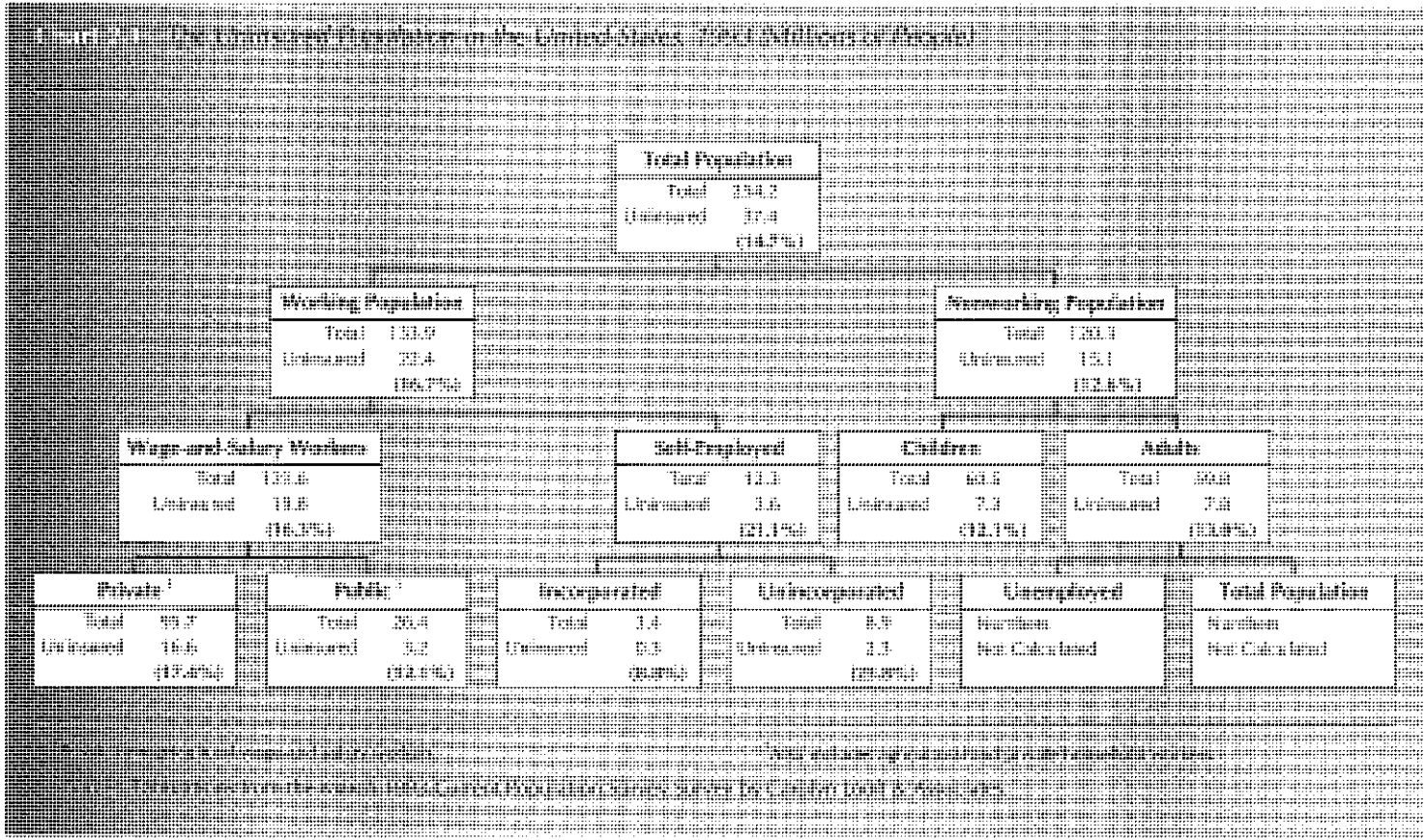
Note: Figures may not add to totals because of rounding.
Source: Tabulations by Carolyn Looff & Associates from the Current Population Survey, March 1993.

employer coverage (Table 2.4 and Chart 2.3). Nonemployer coverage includes other private insurance, Medicaid, Medicare, and Champus/ChampVA (Table 2.25). While about one-half of workers in firms with 25 to 99 employees receive coverage from their employer, an additional 30 percent receive coverage from other sources. Almost two-thirds of workers at larger firms (with 100 employees or more) have employer-provided coverage, with over 23 percent covered by other sources.

Workers in large firms are more than twice as likely to provide health insurance to workers in small firms than vice versa.[19] In 1993, 9.5 percent (5.2 million) of workers in small firms with fewer than 500 employees were covered by a worker in a large firm, compared with 4.5 percent (1.8 million) of workers in large firms who were covered by a worker in a small firm with fewer than 500 employees (Table 2.5). Workers are likely to be covered by another family member's employer if either their employer does not offer health insurance or if their family member's insurance offers better coverage than their own employer provides.

In 1993, among the 23.8 million workers in small firms with fewer than 25 employees, 5.1 million (21.4 percent) were covered by another person's employer-provided insurance (Table 2.5). Five million, or 21.0 percent, had nonemployer coverage. Among the 39.9 million workers in large firms with 500 or more employees, 5.4 million (13.5 percent) were covered by another person's employer-provided insurance. Another 3.9 million (9.8 percent) had nonemployer coverage. Firms with fewer than 500 employees were the

[19] It is not possible to determine several important characteristics of the firm of another employee that provides health insurance to those not employed by the firm. For example, it is not possible to determine whether such a firm is in the public or private sector.


Total Population
Total
Uninsured
Working Population
Total
Uninsured
Nonworking Population
Total
Uninsured
Wage-and-Salary Workers
Total
Uninsured
Self-Employed
Total
Uninsured
Children
Total
Uninsured
Adults
Total
Uninsured
Private
Total
Uninsured
Public
Total
Uninsured
Incorporated
Total
Uninsured
Unincorporated
Total
Uninsured
Unemployed
Northern
Not Calculated
Total Population
Northern
Not Calculated

small firms (1–24 workers) turn down coverage in their firms' plans, compared with 7 percent in the larger companies (500 or more workers).[11]

Data Sources for Measuring the Uninsured

Estimates of the number of the uninsured can be derived from several sources including the Census Bureau's Current Population Survey (CPS) and Survey of Income and Program Participation (SIPP).

Both data sources provide measures of (1) the number of insured and uninsured by employment status (wage-and-salary, self-employed, nonworkers) and firm size; and (2) the insurance coverage of family members of workers by employment status and firm size. Both sources are based on a nationally representative survey of households that asks both the size of the respondent's employer and whether or not the respondent has health insurance. Both the CPS and SIPP provide this information for every member of the household, so that it is possible to estimate health insurance coverage for the population as a whole.[12] The SIPP is currently the best data set for analyzing the dynamics of how long people are without health insurance.[13] SIPP is a longitudinal data set that tracks households over a 2½-year period and provides statistics that describe changes in health insurance coverage of households and their members over this period. The March CPS, which is conducted annually, is the most current and most consistently cited source of data on the number and characteristics of the uninsured.[14] This survey provides estimates of persons without health insurance at a point in time.

Who Are the Uninsured?

Total Uninsured in the Nation

According to the March 1993 CPS, of the estimated 254.2 million persons in the U.S. population, 37.4 million (14.7 percent) lacked health insur-

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[11] Rubin, *Health Care Costs and Coverage*, III–23.

[12] Mark C. Berger, Dan A. Black, and Frank A. Scott, *Measuring the Uninsured by Firm Size and Employment Status: Variation in Health Insurance Coverage Rates, Part 1*, report no. PB94–195153 prepared by Carolyn Looff & Associates for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, 1994), 3.

[13] Katherine Swartz, "Dynamics of People Without Health Insurance: Don't Let the Numbers Fool You," *Journal of the American Medical Association*, January 5, 1994, v. 271, n. 1, 64–66. Findings from the SIPP data indicate that half of all spells without insurance ended in 6 months, but that the other half of uninsured spells were much longer than 6 months. Estimates for the total uninsured at some time during the year have been significantly higher (58 million) than for the uninsured at a point in time (35.5 million).

[14] For a comparison of the ability of CPS and SIPP data to measure the uninsured see the appendix to this chapter. Note that the latest March CPS data analyzed in this chapter are for 1993. The March CPS questions individuals about their health insurance coverage throughout the preceding calendar year. However, many researchers believe that most of the respondents actually answer the health insurance questions with reference to either their current status or to some period less than a full year.

uninsured cannot afford health insurance; others are unwilling to acquire it. The uninsured include people who are poor, sick or disabled, or difficult to insure (such as those with pre-existing conditions), as well as those who are able but unwilling to pay for insurance, including many young people who believe they do not need insurance.[4]

Most individuals obtain private health insurance through their employer or the employer of a family member. There are three basic considerations affecting whether an individual will have employer-provided coverage. First, the employer must offer the insurance; second, the individual must be eligible for coverage; and third, the individual must be willing to pay for his or her share of this insurance if an employee contribution is required.

Why Firms Do Not Offer Health Insurance

Each firm's special characteristics can determine whether or not it offers health insurance to its workers. For example, firm size is a key factor affecting whether an employer offers health insurance. For a variety of reasons, small firms are significantly less likely to offer insurance than large firms.

Industry differences also affect health insurance availability and coverage. Industries less likely to offer insurance are characterized by low and variable profits, high turnover, and an inordinate number of part-time, seasonal, or young workers. Most companies without coverage are in the retail trade and construction industries. Data also indicate that workers in certain service industries are significantly more likely to be without coverage. Almost 80 percent of retail firms with fewer than 10 employees do not sponsor health plans, probably because they employ a high proportion of part-time workers who are covered by other insurance plans.[5] More than 50 percent of all small construction firms with fewer than 10 employees also are without insurance plans.

The legal form of a business also can affect whether health insurance is offered because of tax incentives. While a sole proprietor has been able to claim only 25 percent of his or her health insurance as a deduction, corporate officers and owners can deduct a full 100 percent. Only 29 percent of sole proprietorships offer insurance, compared with 49 percent of S corporations, and 77 percent of corporations.[6] Even in the smallest firm size category (i.e.,

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[4] Victor R. Fuchs, "National Health Insurance Revisited," *Health Affairs* (Winter 1991), 8–9. Another related issue is whether the health care industry resembles other service industries. Some argue that the demand for health care is different from the demand for other services because most people do not pay for their care directly. Likewise, it is argued that the supply of health care also differs from that of many other service industries because consumers rely on providers for information about health care services and providers are heavily regulated. *Economic Report of the President* (1993), 119–120.

[5] Robert Rubin, *Health Care Costs and Coverage in Small and Large Businesses*, report no. PB87–194767 prepared by ICF Incorporated for the U.S. Small Business Administration, Office of Advocacy (Springfield, Va.: National Technical Information Service, 1987), Table III–6.

[6] *The State of Small Business: A Report of the President* (Washington, D.C.: U.S. Government Printing Office, 1987), 140–150.

is, workers may obtain coverage from a variety of sources other than their own employer, including through a spouse's plan and other private and public plans.

Workers in large firms are also more likely to provide family coverage for workers in small firms than vice versa. Workers in large firms are more likely to be offered plans than workers in small firms and large firm plans are generally more comprehensive and less costly than small firm plans. In 1993, 12.7 percent (5.2 million) of the workers in small firms with fewer than 500 employees were covered by a worker's plan in a large firm, compared with 4.4 percent (1.8 million) of workers in large firms who were covered by a worker's plan in a small firm.

The lack of health insurance is greater among the self-employed (21.1 percent) than among private wage-and-salary workers (17.4 percent) and the population in general (14.7 percent). The unincorporated self-employed are significantly more likely to be uninsured than the incorporated self-employed. This difference is due, in part, to the differences in tax deductibility of health insurance among legal forms of business.

Workers who are uninsured are also those most likely to be employed by small firms—those who are younger, unmarried, minority, and less educated. Uninsured workers are employed in small businesses in the retail, construction, and services industries, and they often work in service occupations. They also work part-time, part-year and for low wages.

Reform efforts to provide universal health insurance coverage need to be sensitive to special conditions affecting the market for health insurance in small businesses. In addition, reform efforts need to take into account the relative impact of proposals on the profitability of small versus large businesses.

Introduction: Public Policy and the Health Care Marketplace

Health care reform is a high priority on the nation's domestic policy agenda. Although various health care reform proposals differ significantly, two issues are central to most of them: expanding health coverage to the uninsured and controlling costs.[1]

The lack of availability and high cost of health insurance rank close to the top of the list of small business issues. The urgency of dealing with them grows with each coverage or cost statistic that is released.[2] Health benefits are among the most common fringe benefits offered by employers. To attract and retain employees, most employers make an effort to start and maintain health plans responsive to the needs of workers.

While the overall ability to obtain health care has improved over the last five decades, the affordability and accessibility has worsened for many—particularly

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[1] For an analysis of these issues see *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, January 1993), Chapter 4.

[2] William J. Dennis, Jr. *Small Business Problems and Priorities* (Washington, D.C.: The NFIB Foundation, 1992), Table 1.

Table 1.21 *Receipts per Nonfarm Sole Proprietorship by Gender of Owner, 1981–1991*

Year	Total	Women	Men
1991	45,019	19,020	53,667
1990	43,969	19,876	55,490
1989	43,515	17,889	54,594
1988	42,271	18,080	52,485
1987	41,984	18,147	52,607
1986	40,128	17,362	49,335
1985	40,615	17,401	49,622
1984	41,299	16,575	50,441
1983	38,998	16,174	47,466
1982	38,823	14,178	47,907
1981	40,498	14,236	50,611
Average Annual Growth Rate (Percent)	1.1	2.9	0.6

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data prepared by the U.S. Department of the Treasury, Internal Revenue Service, 1994.

by small businesses in a growing industrial sector is a boon to the economy and a sign of the vitality of the industry originally dominated by small businesses.

Through the changes largely introduced by small businesses, the jobs in the economy are changing from craft-based to information-based and the need for workers skilled in communication and mathematics is increasing. The ability to understand and follow detailed instructions and to write such instructions for others or for machines, whether verbal or quantitative, is an attribute demanded in today's job market. Training and experience in these skills are available from many small firms, especially in finance, trade, and services. It is in industries such as these that many small businesses are supplying the necessary training.

Industrial sectors such as trade and services, which have historically been small-business-dominated, are consolidating and larger entities are the result. The economies obtained through consolidation include mass purchasing, standardized operation, better management controls, and better promotion and control of the franchise. For this purpose, franchise means control and influence of the channels of distribution and the image of the product or service as viewed by the ultimate consumer. Data interchange makes larger trade and service entities more flexible, and it is likely that further consolidation of activities into larger firms in the United States will continue. The rate of consolidation may be less rapid than the rate previously observed in manufacturing, where the economies of scale were more apparent and more responsive to straightforward engineering. Knowledge-based industries require a new attitude toward education and job training that is less specific and more basic.

Table 1.19 *Nonfarm Sole Proprietorships by Gender of Owner and SBA Region, 1980 and 1991*

Industry	1980			1991			Percent Change (1980–1991)	
	All Nonfarm Businesses	Women-Owned Businesses	Women's Share of Total	All Nonfarm Businesses	Women-Owned Businesses	Women's Share of Total	All Nonfarm Businesses	Women-Owned Businesses
U.S. Total	**9,730,019**	**2,535,240**	**26.1**	**16,957,636**	**5,548,514**	**32.7**	**74.3**	**118.9**
Region I	512,401	120,273	23.5	929,860	318,397	34.2	81.5	164.7
Region II	807,319	195,756	24.2	1,458,560	489,029	33.5	80.7	149.8
Region III	866,848	231,216	26.7	1,527,619	528,437	34.6	76.2	128.5
Region IV	1,480,801	370,354	25.0	2,904,751	872,026	30.0	96.2	135.5
Region V	1,774,893	481,945	27.2	2,767,606	916,389	33.1	55.9	90.1
Region VI	1,237,802	277,022	22.4	2,107,895	587,657	27.9	70.3	112.1
Region VII	602,859	166,643	27.6	926,672	346,346	37.4	53.7	107.8
Region VIII	431,948	115,755	26.8	652,902	220,755	33.8	51.2	90.7
Region IX	1,513,668	446,169	29.5	2,924,232	1,002,820	34.3	93.2	124.8
Region X	484,626	123,924	25.6	757,721	266,657	35.2	56.4	115.2

Note: Detail may not add to totals because of disclosure rules regarding the release of information for specific taxpayers. SBA regions are defined as follows: Region I: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont; Region II: New Jersey, New York; Region III: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia; Region IV: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee; Region V: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; Region VI: Arkansas, Louisiana, New Mexico, Oklahoma, Texas; Region VII: Iowa, Kansas, Missouri, Nebraska; Region VIII: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming; Region IX: Arizona, California, Hawaii, Nevada; and Region X: Alaska, Idaho, Oregon, Washington.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data prepared by the U.S. Department of the Treasury, Internal Revenue Service, 1994.

women-owned proprietorships between 1990 and 1991.[6] Region I (New England) had the highest proportionate gain, adding nearly 38,000 women-owned proprietorships for a gain of over 13 percent in 1991 over 1990.

Women's ownership of business is greatest in wholesale and retail trade, where they own nearly 40 percent of all proprietorships through the addition of more than 87,000 units in 1991 (Table 1.20). Close behind is the service sector, in which women owned nearly 39 percent of proprietorships and added more than 84,000 units. The greatest percentage gain was in the transportation and utility sector, where women-owned proprietorships added more than 26,000 units, a gain of 27 percent. Specific industry details are unavailable, but it is reasonable to expect most of this gain to be in local transportation such as school buses, taxis, and limousines.

Women-owned businesses averaged just over $19,000 in receipts per year or only 35 percent of the receipts of men-owned businesses (Table 1.21). The lower receipts level of women-owned firms is related to their concentration in the trade and service industries and the newness of their businesses. Firms in these industries are generally smaller than those found in mining, manufacturing, construction, and transportation. Receipts for both men-owned and women-owned businesses were down about 4 percent in 1991 as a result of the recession that reached its trough in March 1991.

Conclusion

Nineteen ninety-three was a good year for the economy, for business, and for small business. The positive economic news included a gain of 1.8 million jobs, a 3-percent gain in real gross domestic product, a reduction from 7.3 to 6.4 percent in the rate of unemployment, relatively stable consumer and wholesale prices, and an increase of more than 15 percent in corporate profits.

Small-business-dominated industries added jobs to the economy at a rate of more than one and one-half times the national rate of increase of 1.7 percent, while large-business-dominated industries declined in employment at a rate of nearly minus 0.8 percent. The rapid growth of employment in industries that have been the province of small business may mean less small firm dominance in those industries as more firms add employees above the 500-employee criterion for "small business." Advocates for small business are getting used to the notion that a decrease in share for small business in the industries in which they pioneered reflects the success of small business. The goal of many small businesses is to add employees and become large.

The chief contribution of small business to the economy is the ability to experiment with new products and services, new technologies, new channels of distribution, and new geographic locations at comparatively low social cost. Society benefits when the successful ventures add employment. The loss of share

[6] Year-to-year comparisons use 1990 data from *The State of Small Business: A Report of the President* (Washington D.C.: U.S. Government Printing Office, 1994), 262 and 263.

Table 1.15 *Industries Losing the Most Jobs, December 1992 to December 1993*

	Employment Change (Thousands)	Employment Change (Percent)
Small-Business-Dominated Industries		
Women's Outerwear Manufacturing	−25.7	−8.4
Heavy Construction, Except Highway and Street	−7.3	−1.5
Household Appliance Stores	−3.7	−4.8
Accounting, Auditing, and Bookkeeping Services	−3.3	−0.7
Consumer Credit and Collecting Agencies	−3.3	−2.8
Miscellaneous Nondurable Goods	−3.1	−0.6
Beauty Shops	−2.4	−0.6
Real Estate Operators (Excluding Developers) and Lessors	−2.3	−0.4
Insurance Agents, Brokers, and Service	−2.3	−0.4
Services to Printers	−2.3	−3.8
Miscellaneous Apparel	−2.1	−5.2
Land Subdividers and Developers	−2.1	−2.0
Logging	−2.0	−2.6
Dairy Products Stores	−2.0	−9.7
Farm-Product Raw Materials	−1.5	−1.3
Total, 15 Largest Job Losers	−65.4	−1.7
Large-Business-Dominated Industries		
Aircraft and Parts	−74.2	−12.7
Department Stores	−44.8	−2.0
Computer and Office Equipment	−33.7	−8.9
Search, Detection, Navigation, Guidance Systems and Equipment	−24.5	−11.4
Telephone Communications	−24.5	−2.8
Guided Missiles, Space Vehicles	−22.2	−16.7
Miscellaneous General Merchandise Stores	−15.1	−6.3
Laboratory Apparatus and Analytical, Optical Measuring and Controlling	−12.1	−4.3
Ship and Boat Building and Repairing	−10.9	−6.6
Women's Clothing Stores	−10.7	−2.6
Knitting Mills	−9.7	−4.8
Life Insurance	−9.6	−1.8
Crude Petroleum and Natural Gas	−9.4	−5.5
Electric Services	−8.2	−1.9
Fire, Marine, and Casualty Insurance	−8.1	−1.5
Total, 15 Largest Job Losers	−317.7	−4.5

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B–2. The size distribution by industry is taken from special tabulations prepared by the U.S. Department of Commerce, Bureau of the Census, 1993.

Table 1.14 *Fastest Growing Industries in Percent of Employment, December 1992 to December 1993*

	Employment Change (Thousands)	Employment Change (Percent)
Small-Business-Dominated Industries		
Meat and Fish Markets	5.4	9.8
Retail Stores, n.e.c.	40.3	9.2
Automotive Repair Shops	37.9	7.6
Offices and Clinics of Other Health Practitioners	25.4	7.5
Mailing, Reproduction, Stenographic Services	17.1	7.1
Masonry, Stonework, Tile Setting, and Plastering	26.2	6.8
Museums, Art Galleries, Botanical, Zoological Gardens	4.8	6.7
Highway and Street Construction, Excluding Elevated	12.0	6.6
Residential Care	35.6	6.5
Roofing, Siding, and Sheet Metal Work	12.3	6.4
Home Furniture and Furnishing Stores	28.8	6.3
Lumber and Other Building Materials Dealers	26.7	6.2
Miscellaneous Equipment Rental and Leasing	12.5	6.1
Lumber and Other Construction Materials	12.8	5.8
Carpentry and Floor Work	9.5	5.6
Total, 15 Fastest Growing Industries	198.3	6.4
Large-Business-Dominated Industries		
Iron Ores	1.5	17.6
Title Insurance	11.4	17.4
Security Brokers, Dealers, and Flotation Companies	27.1	7.9
Household Appliances	8.4	7.2
Family Clothing Stores	15.7	4.6
Refrigeration and Service Industry Machinery	7.5	4.4
Motion Picture Production and Allied Services	6.2	3.6
Colleges, Universities, Professional Schools, Junior Colleges	35.0	3.1
Motor Vehicles and Equipment	25.1	3.1
Carpets and Rugs	1.7	2.8
Sanitary Services	3.5	2.7
Rubber and Plastic Hose and Belting	1.6	2.7
Accident and Health Insurance and Medical Plans	5.8	2.1
Books	2.5	2.1
Household Audio and Video Equipment	1.7	2.0
Total, 15 Fastest Growing Industries	154.7	4.0

n.e.c. = Not elsewhere classified.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B–2. The size distribution by industry is taken from special tabulations by the U.S. Department of Commerce, Bureau of the Census, 1993.

Table 1.13 *Industries Generating the Most New Jobs, December 1992 to December 1993*

	Employment Change (Thousands)
Small-Business-Dominated Industries	
Eating and Drinking Places	281.4
Offices and Clinics of Doctors of Medicine	56.1
Retail Stores, n.e.c.	40.3
Automotive Repair Shops	37.9
Motor Vehicle Dealers, New and Used	37.5
Residential Care	35.6
Services to Dwellings and Other Buildings	30.3
Management and Public Relations Services	29.3
Home Furniture and Furnishing Stores	28.8
Lumber and Other Building Materials Dealers	26.7
Masonry, Stonework, Tile Setting, and Plastering	26.2
Individual and Family Social Services	25.9
Plumbing, Heating, and Air Conditioning	25.4
Offices and Clinics of Other Health Practitioners	25.4
Electrical Work	24.7
Total, Top 15 Industries	731.5
Large-Business-Dominated Industries	
Colleges, Universities, Professional Schools, Junior Colleges	35.0
Security Brokers, Dealers, and Flotation Companies	27.1
Motor Vehicles and Equipment	25.1
Hospitals	17.9
Family Clothing Stores	15.7
Commercial Banks	13.8
Title Insurance	11.4
Air Transportation, Schedules, and Air Courier Services	10.5
Household Appliances	8.4
Refrigeration and Service Industry Machinery	7.5
Motion Picture Production and Allied Services	6.2
Accident and Health Insurance and Medical Plans	5.8
Meat Products	4.3
Drugs	3.9
Sanitary Services	3.5
Total, Top 15 Industries	196.1

n.e.c. = Not elsewhere classified.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B–2. The size distribution is taken from special tabulations prepared by the U.S. Department of Commerce, Bureau of the Census, 1993.

Table 1.11 *Change in Employment by Size Category and Major Industry, December 1992 and December 1993 (Thousands)*

Industry	Industry Totals	Small-Business-Dominated Industries	Indeterminate Industries	Large-Business-Dominated Industries
Total, All Industries	**1,773.0**	**1,058.3**	**704.2**	**−217.2**
Mining	−6.0	0.0	11.6	−17.6
Construction	196.0	142.5	NA	NA
Manufacturing	−180.0	−39.2	25.5	−207.6
Transportation	−7.0	0.2	17.7	−27.2
Wholesale Trade	−49.0	50.5	15.8	1.1
Retail Trade	445.0	447.2	−11.7	−64.7
Finance	85.0	4.5	26.6	−40.4
Services	1,171.0	404.1	618.7	58.4

NA = Indicates lack of industry representation within that size category.

Note: Data exclude self-employed workers. Small-business-dominated industries are industries in which 60 percent or more of employment is in firms with fewer than 500 employees. Large-business-dominated industries are industries that have 60 percent or more of employment in firms with more than 500 workers. A third set of industries, in which 40.1 to 59.9 percent of employment is in firms with fewer than 500 employees, constitutes an indeterminate group, where dominance is unclear. Because of disclosure problems that arise when industry information is finely detailed, the sum of industry employment is about 1 percent less than the all-industry total and the sum of groups within industries is less than industry totals.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C.: U.S. Government Printing Office, February 1994), Table B.2. Small- and large-business-dominated industries are calculated from special tabulations prepared for the U.S. Small Business Administration, Office of Advocacy, by the U.S. Department of Commerce, Bureau of the Census, based upon 1990 measurements.

economy, but employment in the indeterminate size category within the service sector grew twice as fast as in the small-business-dominated category. Until 1990, employment in small businesses was so large as to make the entire service sector small-business-dominated. As the service industry grew, the firms within the industry grew, and the result is more service industries with a substantial portion of employment in firms with more than 500 employees.

Within retail trade an opposite trend is apparent. The sector is adding employees faster than the economy as a whole, but the large-business-dominated and indeterminate sectors are employing fewer workers. The growth of employment among the small-business-dominated retail industries is twice the national rate of employment growth. This is further indication of the vitality of specialty retailers.

The financial sector (finance, insurance, real estate) is adding employees at a rate well below the national average, but employment in the indeterminate group is growing half again as fast as the national average and two and

prove their productivity and "restructure." Small-business-dominated industries show the largest employment gains and a percentage gain well above the overall average. But the indeterminate group is growing fastest in percent of employment gain, although adding fewer jobs. More and more industries are growing as their products achieve wider demand, their operating technology and methods improve, and channels of distribution are established. The change from small-business-dominated to the indeterminate classification is due to 1) the growth of some previously small entities, 2) the entry of larger firms, and 3) an increase in previously large firms whose employment has fallen below 500. There is a difference among industrial sectors as to which of these factors is most active.

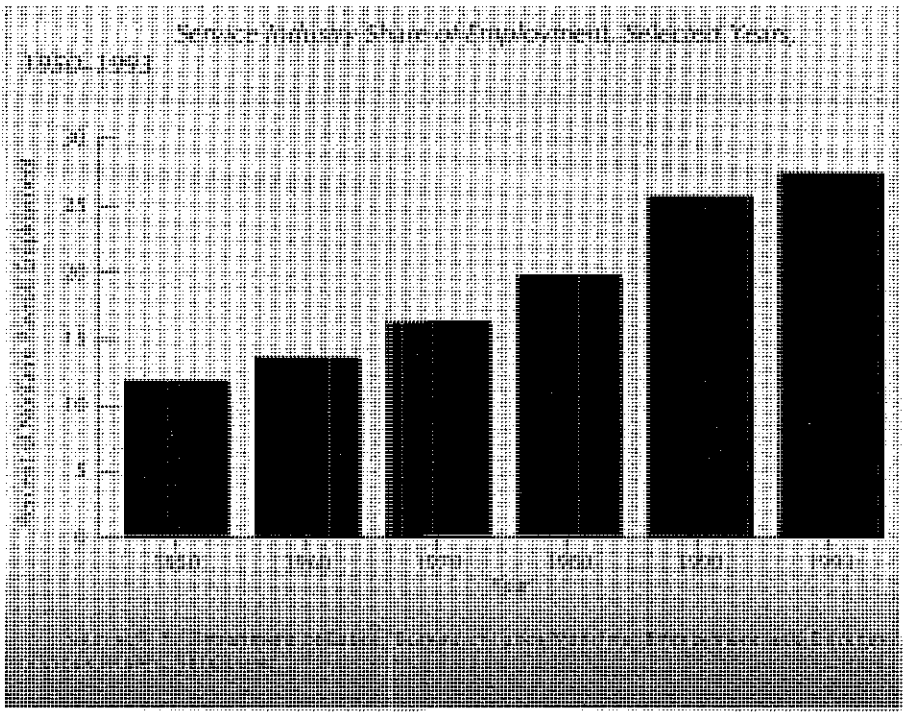
The gain of nearly 1.8 million jobs in 1993 is distributed unequally across industries, with different average firm sizes (Table 1.11). Mining and manufacturing show a combined loss of 225,000 jobs in the industries within the sector that were large-business-dominated. This is more than the 217,000 jobs lost among all large-business-dominated industries. Except for a small gain in wholesale trade, the only sector to gain employment among its large-business-dominated industries was the service sector, which until recently was composed mostly of small businesses.

The largest employment gains among small-business-dominated industries were in the retail and service sectors. The renaissance of small retailers is important in view of the trend away from small and toward large retailers in the 1960s and 1970s. Listed later in this chapter are some of the retail specialty stores from among the group that exhibits this trend. As would be expected, almost all of the gain in construction employment occurred within small-business-dominated industries. The construction sector is composed largely of small businesses. The decline in manufacturing employment occurred in the small-business-dominated manufacturing industries as well, although at a lower incidence than in large-business-dominated manufacturing industries.

The indeterminate industries are of special interest. Constituting only 22 percent of the industries categorized, they account for over 40 percent of the employment gains, or over 700,000 jobs. This gain is partly at the expense of the large-business-dominated sectors of mining, manufacturing, and retail trade, which are "downsizing," and partly a result of the gain of over 618,000 jobs in service industries.

The pattern of change in industrial structure can be traced by comparing the percent change in each size category in each industrial sector with the average overall gain in all industries, by industry, and by size category (Table 1.12). The total gain in employment for all industries is just under 2 percent. The gain for services is double the overall percentage. That is, the services industry is growing in employment twice as fast as employment in the economy as a whole. Construction also outpaced the economy as a whole, but this is a cyclical phenomenon and not a long-term structural trend. All other industrial sectors grew less rapidly than employment in the economy as whole.

The pattern within the industrial sectors indicates changing structure as well. Service sector employment grew at a rate double that of the overall



limited by its size and investment. One cannot expect a successful large firm to risk all of its assets on unproven ventures as often as smaller firms whose only asset placed at risk may be the venture currently under test.

At first agriculture was composed of many small operators. As productivity increased and scale operations became more efficient, farms became larger and workers fewer. Next came mining and manufacturing, with small firms at the start. Again technology and management methods permitted increased production with fewer workers in larger entities. The trade and service sectors have recently experienced the same types of change. Retail trade, which at the turn of the century was almost entirely small business, now has nearly one-half of its employment in firms of more than 500 employees. The services sector is following a similar path and since 1991 is no longer small-business-dominated, with just under 60 percent of sector employment in firms with fewer than 500 employees.

Employment in Small- and Large-Business-Dominated Industries

The allocation and availability of employment is changing among major industrial sectors and the industries within them. The pattern of employment change is one of "downsizing" in large-business-dominated industries and "upsizing" in small-business-dominated industries (Table 1.10). Large-business-dominated employment is declining overall as the mature industries im-

programmed. But it is small business, in its traditional role as pioneer, that first developed the services and methods of delivery that have become established, streamlined, and standardized.

Employment trends in most other industries, with the exception of construction, are rather stable and seem to move as a group (Chart 1.18). Employment in mining is steadily declining, while employment in the service sector is steadily increasing. The remaining industries have been increasing their employment at a rate just under 2 percent a year for the past 10 years. Of these, only construction exhibits much cyclical variation. It can be seen that most of the unemployment problems from 1990 to 1992 are the result of cutbacks in construction employment. Of all industries, construction is the industry most dominated by small entities and the recent recession was felt most sharply by these small businesses. Overbuilding and high interest rates at the end of the 1980s contributed to this decline in construction. A recovery from the 1992 low was evident in 1993.

Small- and Large-Business-Dominated Industries

More than 92 million nonfarm private sector workers were employed in the United States in December 1993. This is a gain of nearly 1.8 million over December 1992 and 10 times the gain of 177,000 jobs in the preceding calendar year (Table 1.9). About 53.7 percent of all payroll employment was in firms of fewer than 500 employees; the greatest gains in employment were in those industries with the highest percentage of employment in small firms.[5] Mining, manufacturing, and utilities experienced a reduction in payroll employment. All three of these groups are dominated by large firms, with small business' share of employment well under 50 percent.

The largest employment gain was the 1.2 million jobs added in services, a small-business-dominated sector until 1991. Retail trade, a small-business-dominated sector until 1987, added nearly 450,000 new jobs. Construction, the sector with the highest proportion of employment in small firms, added nearly 200,000 new jobs. The job creation role of small business is not so much related to the size of the business as to the sector in which the business is located.

Proven markets, established technologies, and available channels of distribution invite large scale operation. Industries in which these attributes are present are gradually dominated by the larger firms that exploit economies of scale in these areas. Before large firms can emerge, however, the markets, technology, and methods of distribution must first be established. This most often occurs as the result of much trial and error as well as imagination and ingenuity. Because they are so numerous, small firms are able to attempt more trials or experiments than a few large firms can perform, and at a lower social cost because of their smaller scale of operations. The risk to a small firm is

[5] The percentage employment in small firms is calculated from 1990 census data and is used to classify industries by employment in small or large firms. 1993 employment data are applied to these percentages.

Table 1.7 *Change in Business Failures and Bankruptcies by SBA Region, 1992–1993*

	Business Failures		Change 1992–1993	Bankruptcies		Change 1992–1993
	1992	1993		1992	1993	
U.S. Total	**97,069**	**85,982**	**−11.4**	**69,848**	**61,799**	**−11.5**
Region I	6,214	5,330	−14.2	3,943	3,103	−21.3
Region II	10,710	9,759	−8.9	6,203	5,774	−7.2
Region III	8,778	7,054	−19.6	6,898	6,404	−7.2
Region IV	14,385	12,237	−14.9	11,231	8,830	−21.4
Region V	12,460	10,003	−19.7	10,159	9,172	−9.7
Region VI	10,784	9,834	−8.8	7,827	6,136	−21.6
Region VII	4,276	3,205	−25.0	2,644	2,110	−20.2
Region VIII	2,935	2,693	−8.2	2,537	2,104	−17.1
Region IX	22,825	22,415	−1.8	14,698	15,269	2.0
Region X	3,702	3,452	−6.8	3,438	2,897	−13.3

Sources: For failures adapted by the U.S. Small Business Administration, Office of Advocacy, from the Dun and Bradstreet Corporation, *Business Failure Record* (various issues); for bankruptcies, from data provided by the Administrative Office of the U.S. Courts, Statistical Analysis and Reports Division.

years. The statement can be made both for the long term and the short term: manufacturing firms are producing more with fewer workers.

Manufacturing employment has fallen from over 33 percent of the nonfarm civilian work force in 1950 to just over 16 percent in 1993 (Chart 1.15). Most of this reduction in employment is in larger firms. The small business share of manufacturing employment is increasing, reaching 35 percent of employment in 1991, partially because large firms are getting smaller but also because new small firms are entering and existing small firms are growing.

The current changes in information technology are analogous to the past engineering advances in manufacturing. New ways of doing business, of maintaining records, and of reaching customers are permitting the re-engineering of the finance, trade, and service industries. The result should be a more efficient and productive work force, fully competitive in world markets for both goods and services.

As manufacturing productivity frees workers for other pursuits and as the standard of living rises for consumers, there is an increase in the demand for personal, health, and amusement services. These are industries that have traditionally been largely served by small businesses. Service industry employment has risen from less than 12 percent of nonfarm civilian employment in 1950 to more than 27 percent in 1993 (Chart 1.16). Many of these jobs are high-paying and most require a better-educated work force than manufacturing labor. Communication, language and quantitative skills are more necessary to the service industries than manual dexterity or physical strength.

Table 1.6 *Measures of Business Failure, 1984–1993*

	Bankruptcies	Percent Change
1993	61,799	−11.5
1992	69,848	−1.1
1991	70,605	10.5
1990	63,912	2.3
1989	62,449	−0.6
1988	62,845	−22.9
1987	81,463	1.9
1986	79,926	12.2
1985	71,277	11.0
1984	64,211	2.9
	Failures	**Percent Change**
1993	85,982	−11.4
1992	97,069	9.9
1991	87,266	43.7
1990	60,746	20.6
1989	50,361	−11.8
1988	57,099	−6.6
1987	61,111	−0.8
1986	61,601	7.9
1985	57,067	9.6
1984	52,078	—

Sources: For failures, adapted by the U.S. Small Business Administration, Office of Advocacy, from the Dun and Bradstreet Corporation, *Business Failure Record* (various issues); for bankruptcies, from data provided by the Administrative Office of the U.S. Courts, Statistical Analysis and Reports Division.

Business Earnings

The recovery in corporate profits observed in 1992 was even stronger in 1993, with a 14.8-percent gain over the previous year (Table 1.8). This was the third successive year of recovery in corporate profits after the two-year decline in 1989 and 1990.

Employment compensation continued to gain, although not as fast as corporate profits. The 5.3-percent gain in total compensation includes the compensation for the 1.7 million jobs that were added during the year. The average worker experienced a much smaller gain in compensation. Not all of the gain was in base wage rates, as the use of overtime increased, particularly in manufacturing. The use of overtime in manufacturing contributed to the lower employment levels in that industry. In spite of this use of overtime and the increased productivity per worker in many industries, the percent unemployed fell from 7.4 percent in 1992 to 6.8 percent in 1993.

Table 1.4 *New Business Incorporations, 1981–1993*

	Incorporations	Percent Change
1993	706,540	6.0
1992	666,800	6.1
1991	628,580	−2.9
1990	647,366	−4.3
1989	676,567	−1.2
1988	685,095	−0.1
1987	685,572	−2.4
1986	702,101	5.0
1985	668,904	5.3
1984	634,991	5.8
1983	600,400	5.9
1982	566,942	−2.5
1981	581,661	—

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the Dun and Bradstreet Corporation, *New Business Incorporations* (various issues).

Table 1.5 *New Business Incorporations by SBA Region, 1992 and 1993*

	1992	1993	Percent Change
U.S. Total	**666,800**	**706,540**	**6.0**
Region I	28,686	30,233	5.4
Region II	97,486	99,438	2.0
Region III	89,158	94,961	6.5
Region IV	152,366	159,223	4.5
Region V	102,794	111,900	8.9
Region VI	60,978	62,037	1.7
Region VII	22,545	24,221	7.4
Region VIII	25,315	26,999	6.7
Region IX	62,523	70,262	12.4
Region X	24,949	27,266	9.3

Note: SBA regions are defined as follows: Region I: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont; Region II: New Jersey, New York; Region III: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia; Region IV: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee; Region V: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; Region VI: Arkansas, Louisiana, New Mexico, Oklahoma, Texas; Region VII: Iowa, Kansas, Missouri, Nebraska; Region VIII: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming; Region IX: Arizona, California, Hawaii, Nevada; and Region X: Alaska, Idaho, Oregon, Washington.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from the Dun and Bradstreet Corporation, *New Business Incorporations* (various issues).

Table 1.2 *Change in the Number of U.S. Businesses with Employees, Calendar Years 1982–1993 (Thousands)*

Year	Firms at End of Year	Successor Firms	New Firms	Sum: New and Successor Firms	Terminations	Net Rate of Growth (Percent)
1993	5,848	136	780	916	803	2.0
1992	5,735	138	737	875	819	1.0
1991	5,680	138	726	864	821	0.8
1990	5,636	146	769	915	844	1.3
1989	5,565	153	745	897	837	1.1
1988	5,504	153	733	886	770	2.2
1987	5,388	163	748	911	731	3.5
1986	5,207	175	725	900	814	1.7
1985	5,121	166	715	881	754	2.5
1984	4,995	164	691	855	686	3.5
1983	4,825	171	633	804	717	1.8
1982	4,738	185	596	781	707	—

Note: Successors are existing firms taken over by new or existing firms; new firms represent applications for new account numbers; terminations represent firms that either reported being out of business or reported no employment for two years. Each quarter, firms with employees are required to report their employment, payrolls, and unemployment insurance tax liabilities to state employment services. The states in turn report the number of new firms, terminations, and successors to the U.S. Department of Labor. These statistics from the Employment and Training Administration are organized into a master file that begins in third quarter, 1981. Data in this period are available from all states except Michigan, for which a 3½-year period beginning in 1985 was estimated from previous data. Current data are available six months following the end of the quarter. The count of firms includes all active unemployment insurance taxpayers, including local, state, federal, and international governmental agencies. It includes virtually all nonfarm employers, except households, railroads, and selected religious organizations. Multistate employers submit reports to each state in which they operate; therefore, the enterprise count includes some duplication, but because multistate firms are relatively few in number, the count of firms in the United States is not significantly affected. The change in the number of firms from one period to the next represents the addition of new and successor firms less the number of terminations during the period; however, because of changes in counting rules, computer procedures, and other problems, the computed changes are sometimes at variance with the reported data. In these few cases the data are edited so that they are internally consistent.

Source: Adapted by the U.S. Small Business Administration, Office of Advocacy, from data provided by the U.S. Department of Labor, Employment and Training Administration, based upon state employment security agencies' quarterly reports, 1994.

the years 1987–1991.[2] New business incorporations are a measure of business activity in the United States and in the various regions of the country (Table 1.5).

As in 1992, Region V, frequently described as the "Rust Belt", experienced the greatest number of new incorporations. Within Region V, Michigan, the leader of all the states for the increase in the number of incorporations in 1992,

[2] These data are from the records of the secretaries of state in each of the 50 states and the District of Columbia as reported by the Dun & Bradstreet Corporation.

in the United States. Only about 14,000 of these businesses employ more than 500 workers and are designated as large; over 21 million are "small businesses"[1] (Table 1.1). The compound rate of growth in the number of businesses over the 12-year span from 1981 to 1993 was 3.9 percent per year.

Counting the number of businesses by the number of tax returns can be misleading. Many filers of business tax returns are reporting on part-time activities, secondary employment, or avocations, some of which may lead to full-time business ownership. Many of these have little revenue and little or no profit.

Another measure of the number of full-time businesses is the number of businesses with employees. These businesses report their employment and unemployment insurance tax liabilities to their state employment security agencies. The number of firms filing these reports is reported by the U.S. Department of Labor (Table 1.2). Larger firms often report in more than one state, so the employment security count of the number of businesses in the United States is about 10 percent higher than the count by the Bureau of the Census for the same year (Table A.6). Data from the Bureau of the Census are available only after a two-year delay, while the employment security data are available on a current basis, which makes these data particularly useful.

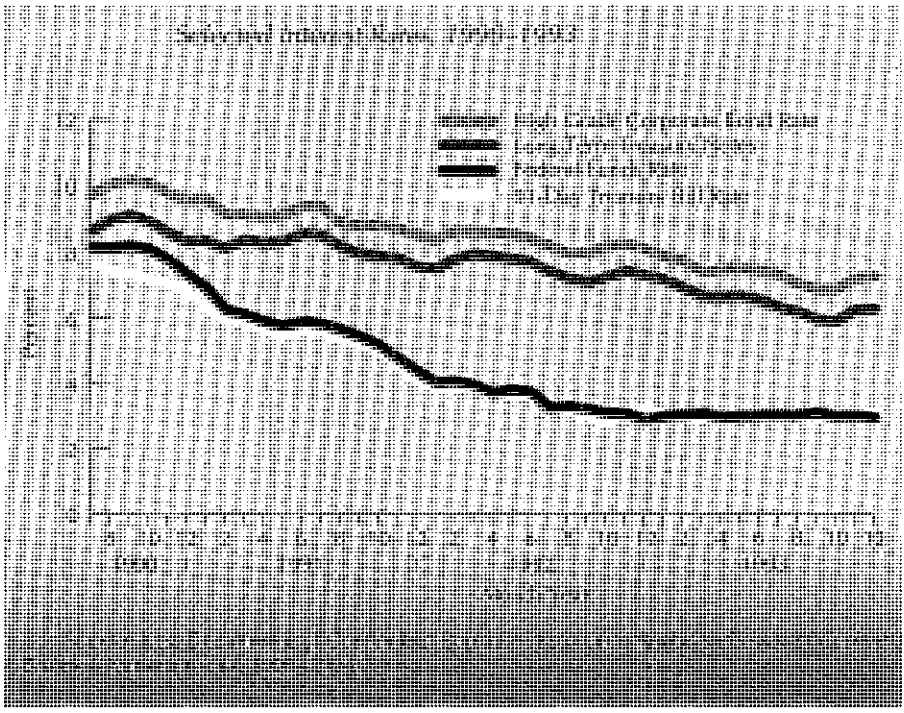
Business Formation and Dissolution

At the end of 1993 there were 5.8 million businesses with employees, as measured by reporting location in the United States. This number has grown at a rate of just under 2 percent a year, about equal to the rate of growth of the general population and of the work force. Within this overall growth rate of 2 percent there is much turbulence. New businesses are entering and older businesses are disappearing at much faster rates. Each year about 14 percent of firms with employees drop from the unemployment insurance rolls while about 16 percent are added each year. This represents the disappearance or reorganization of half of all listed firms every five years! Again, new firms and successor firms—firms with management changes—are added at the rate of nearly 16 percent a year to achieve the overall growth rate of nearly 2 percent.

A high rate of business formation and dissolution is necessary for a modern and dynamic economy. New small businesses are entering the marketplace with new products and services, at new locations, and with new and different methods of distribution. Changing tastes and preferences, new technologies, and changes in demography and geography are all accommodated by the entry and exit of firms.

The formation and dissolution of businesses varies by region across the United States (Table 1.3). Region X (the far Northwest) showed the largest percentage growth in the number of firms during 1993, nearly 6 percent. This active growth was achieved through the largest rate of business formation,

[1] For purposes of this chapter a firm with fewer than 500 employees is defined as a small business.



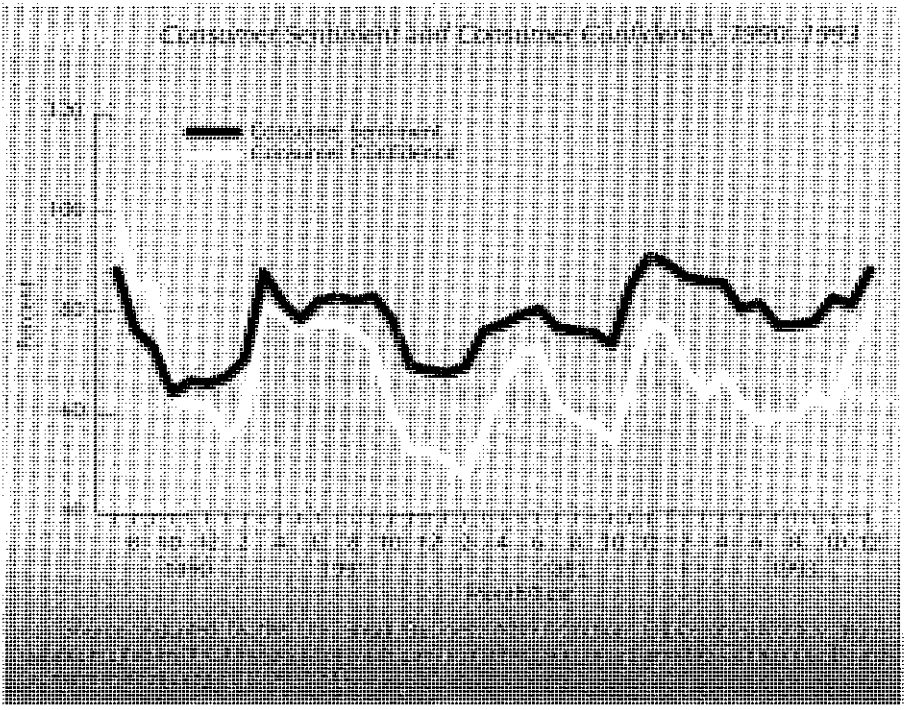
This action with the accompanying reduction in inflationary expectations was designed to help preserve lower and more stable long-term interest rates, which are important to the small-business-dominated home-building industry.

The ability of the Federal Reserve Board to maintain low interest rates without fear of inflation is based on the existence of stable prices and price expectations in the economy. Consumer prices increased at a rate of only 3 percent in 1993 for the second consecutive year (Chart 1.11). While many economists feel that even lower rates of inflation would help to lower long-term interest rates further, this two-year record is the best for any two-year period since 1986.

Many use the Producer Price Index as an alternate measure of price inflation. Annual increases in this price index averaged less than 2 percent over the previous three years and increased only 1.2 percent in 1993 (Chart 1.12). This was also the best three-year record since 1986. Such price stability helped ease fears of future price inflation and narrowed the gap between short- and long-term interest rates. Long-term debt is an important source of financing for small businesses and lower long-term interest rates are important to the small business community.

The Number of Small Businesses

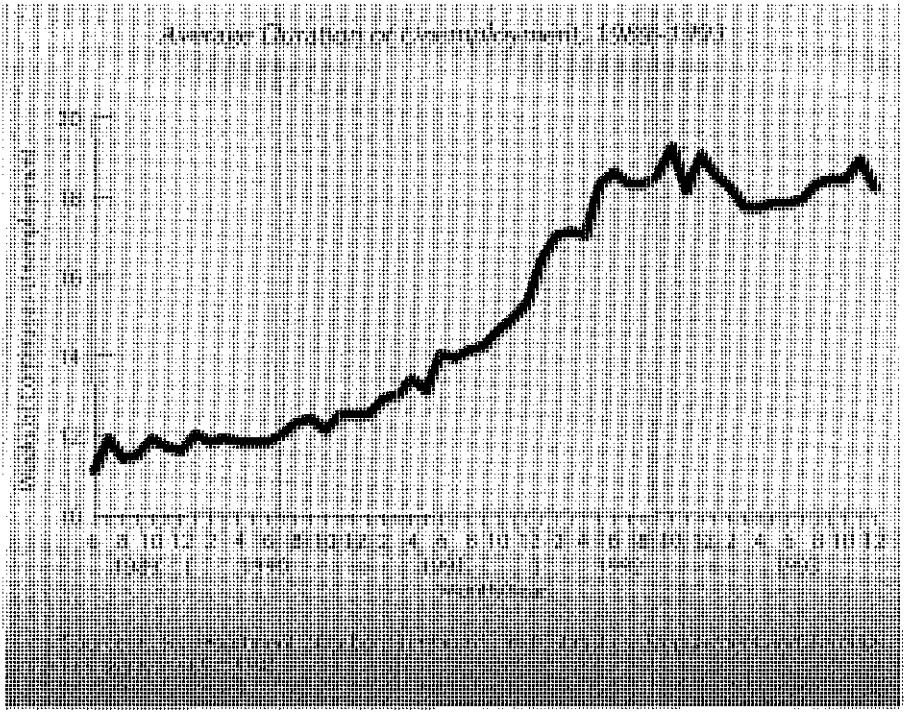
The number of small businesses continued to increase in 1993 and reached the largest total ever, with an estimated 21.5 million business tax returns filed

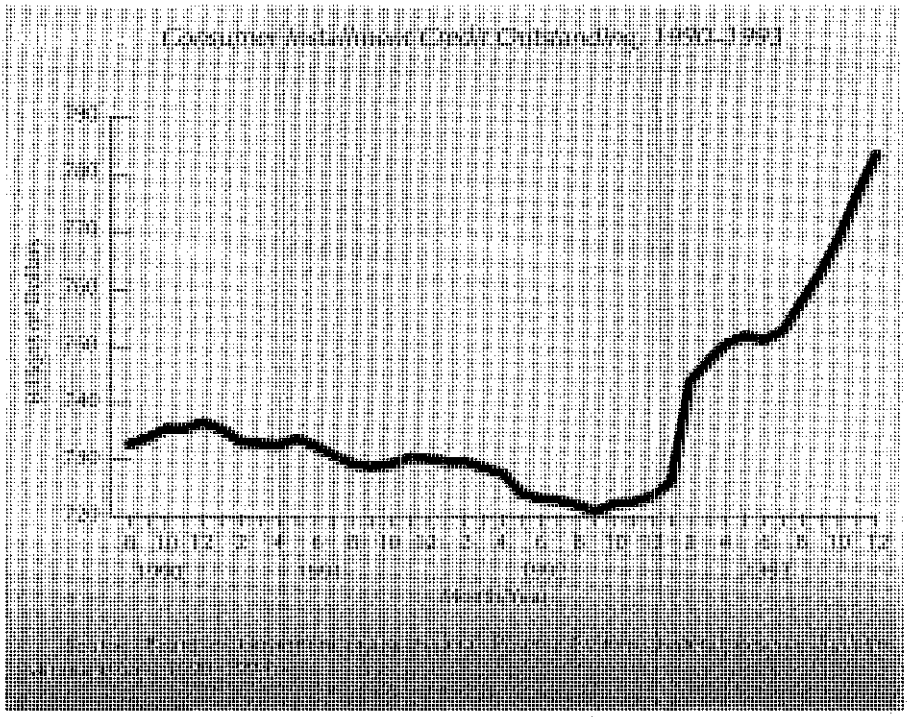


Corporations as well as households exhibited increased confidence in the economy. Expenditures for plant and equipment continued to grow beyond the levels posted in 1992 (Chart 1.8). Corporate expenditures for new plant and equipment continued to edge slightly upward throughout the recession and into the recovery period. Part of the reason for this continued expansion was pressure for improved productivity that resulted from overseas competition. The reduction in debt pursued during 1991 and 1992 was reversed with the assumption of additional debt by nonfinancial businesses in the final three quarters of 1993 (Chart 1.9). These moves form the basis for the further expansion of production of goods and services.

The short-term interest rate averaged 3 percent in 1993, one-half of the average rate at the time of the recession trough in March 1991 (Chart 1.10) Since the end of 1993 there have been slight upward adjustments in short-term rates by the Federal Reserve Board. These adjustments are an attempt to reduce the anticipation of future price inflation and are small compared to the magnitude of the reductions between early 1991 and late 1992.

Changes in long-term interest rates did not fully reflect the reduction in short-term interest rates and remained within a percentage point or two of their 1991 levels. The conventional reasoning for the widening difference between short- and long-term interest rates is the fear of future inflation. These fears were expected to be reduced by the actions of the Federal Reserve Board to raise short-term rates.





Introduction: The Economic Environment for Small Businesses

The economy and the small business sector are strong and growing. Nineteen ninety-three was the second full year of recovery following the recession that reached its trough in March 1991. The growth of the economy was steady, increasing from a 2.6-percent gain in 1992 to a 3.0-percent gain in 1993 (Charts 1.1 and 1.2). The downsizing of industry, particularly in manufacturing and transportation, continued. In the rest of the economy, however, especially in the trade and service sectors, growth was strong enough to result in an employment gain of nearly 1.8 million jobs for the year, mostly in the industries where small businesses predominate.

Key interest rates were at their lowest level since 1962, a span of more than 30 years. Lower interest rates and improved balance sheets in households, banks, and businesses contributed to the momentum of recovery exhibited in the final quarter of 1993 when real gross domestic product (GDP) increased at a 7.5-percent annual rate.

The slowness of the recovery was also reflected in the continued high average duration of unemployment, which still hovered at about 18 weeks. The sharp increase in the duration of unemployment from 1990 to 1992 had leveled off and even declined slightly by the beginning of 1993, but increased again to 18 weeks at the end of the year (Chart 1.3). The difficulties of finding jobs and the long duration of unemployment were not concentrated in manufacturing as had been the case in previous recessions. Many of the reductions in force were among white-collar and management ranks.

The first 18 months after the trough of March 1991 were characterized by conservative financial practices by both households and businesses. This conservatism was a response both to the sluggish job market and the lower consumer confidence. As consumers reduced borrowing, sales of consumer durables such as automobiles suffered. In calendar year 1993 there was a sharp increase in consumer borrowing and spending with a resulting boost in sales of large ticket items (Chart 1.4). The marked improvement of the economy and employment in 1993 was largely fueled by this increase in consumer spending and acceptance of new debt. Small businesses participated in the recovery through their share in industries such as home building and auto and appliance sales and services. Housing starts and housing permits were not only the highest in the previous four years, but displayed a strong growth pattern throughout the 12 months of 1993 (Charts 1.5 and 1.6).

Measures of consumer sentiment and consumer confidence reflected an improved attitude of households toward their situation and their economic surroundings. Both consumer sentiment as measured by the University of Michigan and consumer confidence as measured by the Conference Board recovered from the decline of three years previously (Chart 1.7). Consumer feelings about their "present situation" exhibited a steady improvement extending over a two-year period to a value in December 1993 higher than at any time since 1990.

	Small Business Performance by State	**360**
	Subcontracting by Major Purchasing Agency	**361**
	Federal Contract Awards to Minority- and Women-Owned Businesses	**361**
	Procurement Reform	**362**
	Appendix C Tables	**365**
Glossary		**439**
Index		**443**

Chapter 3	**Innovation by Small Firms**	**109**
	What is Innovation?	**110**
	Types of Innovation	**110**
	Benefits of Innovation	**111**
	The Advantages of Small and Large Firms in Innovation	**111**
	Small Firm Innovators	**111**
	Large Firm Innovators	**112**
	Empirical Evidence	**113**
	Importance of Small Firm Innovations	**113**
	Innovations per Employee	**114**
	Significance of Innovations	**114**
	Research and Development	**115**
	Intellectual Property	**118**
	Outside Relationships	**119**
	Government Involvement in Innovation	**121**
	Social Benefits of Innovation	**121**
	Rationale for Government Involvement	**122**
	Roles of Government in Innovation	**122**
	The Small Business Innovation Research Program	**125**
	Creation of the SBIR Program	**125**
	Payoffs in Competition and Efficiency	**126**
	How the SBIR Program Works	**127**
	Evaluating the Results	**129**
Chapter 4	**Defense Diversification and Small Business**	**133**
	The Effects of Defense Changes on the National Economy	**134**
	Impacts of Defense Adjustments on Specific Industries	**137**
	State and Local Impacts of Defense Diversification	**137**
	Small Business and Defense Adjustments	**140**
	Direct Effects	**141**
	Indirect Job Losses	**143**
	The Needs of Small Firms for Adjustment Assistance	**143**
	Financing: A Special Problem for Small Defense Firms	**146**

fense-related sales to the government, but most small firm losses will occur as the indirect effect of losing business serving the government and private industry defense workers whose jobs will be eliminated.

Most defense spending is concentrated in comparatively few localities and in relatively few industries, and most small business job losses as a result of defense cuts will also be highly concentrated.

Exact data are not available on the number or location of small business jobs that are directly or indirectly dependent on defense purchases; these must be estimated. A reasonable estimate of small business employment in defense industries in 1992 is 1.05 million jobs. Based on estimated levels of total reductions in defense jobs between from 1992 to 1999, a loss of 438,000 small business defense industry jobs is projected over the same period.

In addition to the direct job losses, a much larger job loss is expected in areas where defense industries are concentrated because of the impact of job and income losses of military and civilian DOD employees. The resulting expenditure reductions flow through the local economy in successive rounds of business and consumer spending reductions.

According to an estimate prepared for the U.S. Small Business Administration, each defense job creates approximately another 0.2 to 1.6 jobs in the rest of the local economy; the number varies depending on the nature of the local economy and whether the defense jobs are military, civilian, or private sector. One estimate in the SBA study puts the additional loss of small business jobs because of indirect effects of defense reductions at 720,000.

Many small defense-related businesses face several disadvantages because of their size. They have little experience in transferring their defense technologies to nondefense purposes and less time and money to accomplish such transfers, little or no experience in selling to nondefense customers, and few if any deals with private capital market institutions.

A number of initiatives are being considered in private sector institutions and various levels of government to assist firms making the transition from defense to civilian markets. The variety of approaches is illustrated by defense diversification efforts of the federal government; the state of Virginia; the St. Louis, Missouri, region; the Brooklyn Navy Yard; England Air Force Base in Louisiana; and CALSTART in California.

Profiling the Small Business Uninsured

The lack of health insurance is a significant and growing problem in the United States. According to 1993 Census data, 14.7 percent of the U.S. population—37.4 million people—lacked health insurance of any kind in 1993. The number of uninsured increased 21 percent in the five-year period from 1988 to 1993; the uninsured proportion of the population increased from 12.9 percent to 14.7 percent. The growing number reflects rapidly rising health care costs as well as the effects of the 1990–1991 recession, which resulted in significant downsizing in large firms and concomitant losses of employer-provided health care.

tions (32 percent), process innovations (17 percent), and management innovations (12 percent).

In 1993, the United States spent an estimated $161 billion on research and development (R&D). Of this amount, 42 percent came from government programs; 52 percent from industry; and the remainder from universities and other nonprofit organizations.

In general, large firms are more likely to perform R&D than small firms. Small firms that do perform R&D are relatively more research-intensive than the larger firms; that is, they have a larger percentage of scientists and engineers and the ratio of R&D funds to domestic net sales is larger. Small firms also perform R&D with 57 percent of the R&D funds per scientist or engineer of larger firms, according to one study.

Small firms received only 3.7 percent of federal R&D funds in 1991, but 10.2 percent of nonfederal funds. In small firms (in contrast to large firms), a federal R&D dollar was more than four times as likely to be used for basic research, twice as likely to be used for applied research, and half as likely to be used for development.

Small firms obtain more patents per sales dollar—an indication that small firms may have more discoveries. Small firms with intellectual property such as patents are less likely than large firms to have infringement problems, but when they occur, such problems are more severe for a small firm.

Compared with large firms, small firms also seem to be able to transfer knowledge gained from external research associations more effectively, and thus to increase their returns from total R&D activities. The estimated rates of return on R&D were higher for firms with a university relationship than for those without— 30 percent for large firms and 44 percent for small firms, compared with just 14 percent for large or small firms without such a relationship.

A major reason for governments to stimulate innovation is that firms do not always have enough incentive to innovate because they cannot capture enough of innovation's benefits. The benefits to society from investment in innovation may include lower prices, higher quality products, reduced pollution, and a host of other desired ends. Studies have found that these benefits to society—the social rate of return—are greater than the net benefit to the innovator—the private rate of return. Of one group of R&D projects studied, for example, only 7.2 percent produced a profit.

Federal Procurement

The small business share of goods and services purchased by the federal government increased to 30.6 percent in fiscal year 1992 from 29.9 percent the previous year. (For federal procurement purposes, small business size standards vary by industry, except in the Small Business Innovation Research program, where small firms are defined across the board as those having 500 or fewer employees.)

Small businesses were awarded $61.6 billion of a total of $199.8 billion in contracts for goods and services. Of the total, 19.6 percent ($39.3 billion)

cumulating wealth. They are unlikely to use outside investors or even bank financing, except personal and home equity loans. More than half of these businesses use no startup capital.

Small dynamic firms with new products for a regional, national, or international market have access to equity financing from informal investors (individuals who invest in non-publicly traded companies through informal channels), venture capital funds, and initial public offering markets. Financing conditions for small dynamic firms were very favorable in 1993. A continued strong stock market provided a stimulus to the initial public offering and venture capital markets. Funding for these markets was at historic highs: the value of 709 IPO issues totaled $41.5 billion and disbursements to venture-capital-funded companies were expected to reach $3.3 billion. Disbursements by small business investment companies also increased significantly, to $923.6 million.

For the 4 to 5 million traditional small firms that supply goods and services to local markets, banks and private sources remain the most important debt financing sources. For most small businesses, however, debt borrowing remained flat in 1993. While banks seemed to have eased their credit terms, there was no indication that they had appreciably lowered the strict standards adopted in earlier years. The prime rate remained high despite the fact that money market rates were at historic lows. Commercial and industrial loans declined for the third year in a row. Business loans by the U.S. Small Business Administration, however, increased significantly over the previous year.

The Clinton Administration and banking regulators conducted an extensive regulatory review and implemented efforts to remove impediments to small business lending by traditional financial institutions. The effects of these initiatives are difficult to assess, in part because small business demand for loans was low during the earlier slow-growth period.

Employment

More than 92 million private sector workers were employed in December 1993, reflecting a gain of nearly 1.8 million over December 1992, and 10 times the gain of 177,000 over the preceding year. About 53.7 percent of all payroll employment was in firms with fewer than 500 employees, and the greatest gains in employment were in growing industries with the highest percentage of employment in small firms.

Overall, industries dominated by small firms posted a net gain of 1.06 million jobs in 1993, while industries dominated by large firms lost more than 200,000 jobs. Industries in which employment is divided more evenly between large and small firms gained more than 700,000 jobs in 1993.

The services sector—clearly small-business-dominated until 1991—added the most jobs overall (1.2 million) and grew at a rate twice as fast as employment in the economy as a whole. Employment in the industries within the service sector that are neither small- nor large-business-dominated grew twice as fast as in those dominated by small businesses.

Streamlining Act, which will change the way the government does business. The law modifies more than 225 provisions of procurement law to reduce paperwork burdens, improve efficiency, save the taxpayers money, establish a Federal acquisition computer network, increase opportunities for women-owned and small disadvantaged businesses, and generally make Government acquisition of commercial products easier. This report documents how small businesses are doing under the old system; my hope is that opportunities for small business success will be even greater once these reforms are in effect.

Human Resources

Beyond encouraging an economic environment that supports small business success, opening doors to capital resources, buying more of our goods and services from small firms, and getting out of small business' way, I believe we in Government have a responsibility to ask whether we are doing enough to ensure a healthy and adequately prepared work force.

I remain committed to seeking a way to provide health insurance coverage for all Americans. As this report clearly shows, the number of uninsured Americans is too high—and it's growing. Millions of those citizens are in working families. And the sad fact is that many of those workers are in small businesses, which have seen their premiums and deductibles soar. We must make sure that self-employed people and small businesses can buy insurance at more affordable rates—whether through voluntary purchasing pools or some other mechanism.

We also ought to be able to ensure that our citizens are adequately provided for when they reach the end of their working years. Here too, small firms have been at a disadvantage. Our proposed pension legislation exempted most small plans from compliance and reporting increases.

And while our industries restructure and move from an age of heavy industry to an information age that demands new skills and new flexibility, we need to make sure that our work force has the skills and tools to compete. That is why I proposed the Middle Class Bill of Rights, which would provide a tax deduction for all education and training after high school; foster more saving and personal responsibility by permitting people to establish an individual retirement account and withdraw from it tax-free for the cost of education, health care, first-time house buying, or the care of a parent; and offer to those laid off or working for a very low wage a voucher worth $2,000 a year to get the skills they need to improve their lives.

International Trade

We also want to empower small businesses to succeed in a global economy. One of the greatest challenges in the next century will be our international competition. Ninety-six percent of all exporting firms are small firms with fewer than 500 employees, but only 10 percent of small firms export; therefore the potential for increasing small firm exports is significant. I believe the

are revised banking regulatory policies concerning some small business loans and permission for financial institutions to create "character loans."

New legislation supported by my Administration and enacted in September 1994, the Riegle Community Development and Regulatory Improvement Act, establishes a Community Development Financial Institutions Fund for community development banks, amends banking and securities laws to encourage the creation of a secondary market for small business loans, and reduces the regulatory burden for financial institutions by changing or eliminating 50 banking regulations.

Under the Small Business Administration Reauthorization and Amendments Act of 1994, the Small Business Administration (SBA) is authorized to increase the number of guaranteed small business loans for the next 3 years. The budget proposed for the SBA will encourage private funds to be directed to the small businesses that most need access to capital. While continuing cost-cutting efforts, the plan proposes to fund new loan and venture capital authority for SBA's credit and investment programs. Changes in the SBA's 7(a) guaranteed loan program will increase the amount of private sector lending leveraged for every dollar of taxpayer funds invested in the program.

Through the Small Business Investment Company (SBIC) program, a group of new venture capital firms are expected to make available several billion dollars in equity financing for startups and growing firms. The SBIC program will continue to grow as regulations promulgated in the past year facilitate financing with a newly created participating equity security instrument.

And the Securities and Exchange Commission's simplified filing and registration requirements for small firm securities have helped encourage new entries by small firms into capital markets.

We are recommending other changes that will help make more capital available to small firms. In reauthorizing Superfund, my Administration seeks to limit lender liability for Superfund remediation costs, which have had an adverse effect on lending to small businesses. Interagency teams have been examining additional cost-effective ways to expand the availability of small business financing, such as new options for expanding equity investments in small firms and improvements to existing microlending efforts.

We've also recognized that we can help small business people increase their available capital through tax reductions and incentives. We increased by 75 percent, from $10,000 to $17,500, the amount a small business can deduct as expenses for equipment purchases. Tax incentives in the 1993 Budget Reconciliation Act are having their effect, encouraging long-term investment in small firms. And the empowerment zone program offers significant tax incentives—a 20-percent wage credit, $20,000 in expensing, and tax-exempt facility bonds—for firms within the zones.

Regulation and Paperwork

But increasing the availability of capital to small firms is only part of the battle. We also have to make sure that Government doesn't get in the way. And

ISSN: 0735–1437
ISBN: 0–16–048045–0

For sale by the U.S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP
Washington, DC 20402–9328