

Nonmanufacturing S&E Employment Continues to Increase, But at Slower Rate

by Richard E.
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Nonmanufacturing S&E employment scores large gains, though growth shows signs of slowing, and R&D lags slightly.

Electronic Dissemination

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Employment in the nonmanufacturing sector, particularly in services, continued to thrive during the late 1980s and early 1990s — despite the doldrums encountered by the manufacturing sector and the national economy in general. Employment of scientists and engineers (S&Es) in nonmanufacturing increased at an even faster pace than overall employment, increasing 40 percent from 1987 through 1993 while overall employment increased 15 percent. By 1993 the nonmanufacturing sector employed 953,900 scientists and engineers, an all-time high. [See sidebar on page 2 for explanation of what is included in "nonmanufacturing."]

For both overall nonmanufacturing employment and employment of scientists and engineers, however, much of the 1987-93 employment growth occurred during the 1987-90 period; growth continued during the 1990-93 period, but only by 10 percent for scientists and engineers (versus 27 percent for the 1987-90 period) and by 5 percent for overall nonmanufacturing employment (versus 9 percent for the 1987-90 period). In absolute numbers, total nonmanufacturing employment stood at 33 million in 1990 and 35 million in 1993.

Variation Among Industries

Of the 28 industry groups that make up the nonmanufacturing sector, two of them — engineering and management services (48 percent) and business services (25 percent) — together employed 694,800 or 73 percent of the 953,900 scientists and engineers employed in nonmanufacturing. Each of these industries enjoyed significant growth during the 1990-93 period: 11 percent for engineering and management services and 22 percent for business services. Very large increases in

S&E employment were experienced by several of the smaller nonmanufacturing industry groups over the longer 1987-93 period, including miscellaneous repair services (1500 percent), hotels and other lodging places (733 percent), membership organizations (138 percent), motion pictures (121 percent), holding and investment companies (72 percent), special trade contracting (54 percent), social services (35 percent), and security and commodity brokers (31 percent). For several industry groups, however, the 1987-93 period was marked by steady contraction in S&E employment. Oil and gas extraction fell by 23 percent, nondepository credit institutions by 27 percent, and coal mining by 36 percent; together these three industries lost 12,500 S&E jobs between 1987 and 1993. Each of these industries declined even faster during the 1990-93 period than the 1987-90 period, mirroring the slowdown in S&E employment growth of those nonmanufacturing industries experiencing rapid growth over the six-year period.

Variation Among Occupations

Scientists and engineers both experienced sizeable increases in nonmanufacturing employment during the 1987-93 period — 41 percent for scientists and 39 percent for engineers. In 1993 the nonmanufacturing sector employed 469,600 scientists and 484,300 engineers. Employment of both groups grew more slowly during the 1990-93 period than over the six-year period — 11 percent for scientists and 9 percent for engineers.

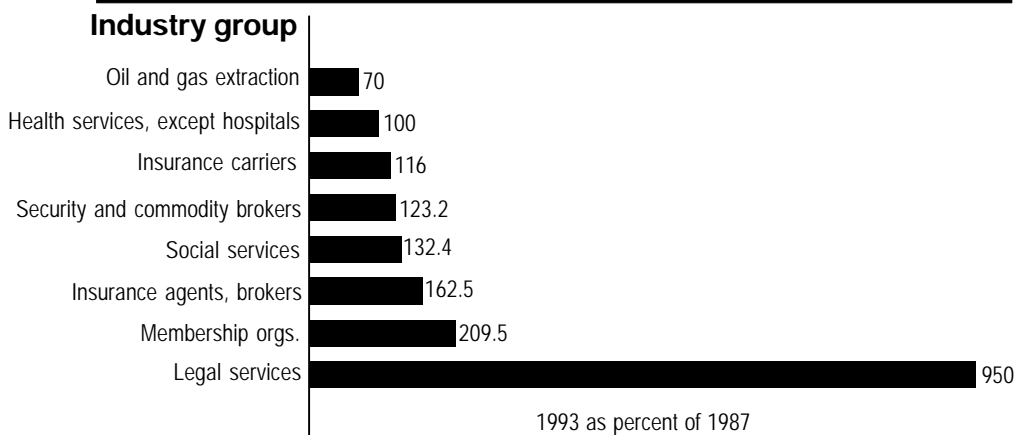
The number of scientists employed in legal services quadrupled from 1987 to 1990 and then more than doubled again between 1990 and 1993, swelling to 1,900 for an overall 850-percent 1987-93 increase. [Chart 1]

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Although a large portion of this increase was accounted for by computer analysts, who more than doubled from 1990 to 1993, an even larger increase was experienced by social scientists, whose employment in legal services increased fourteen-fold over that period.

349,200 in 1987 to 484,300 in 1993, with 70 percent of that increase occurring during the 1987-90 period.

Chart 1. Employment of scientists in nonmanufacturing industries



SOURCE: U.S. Department of Labor/Bureau of Labor Statistics, Occupational Employment Statistics survey

The nonmanufacturing sector (referred to in Department of Labor, Bureau of Labor Statistics publications as "Mining, Construction, Finance, and Services") includes Standard Industrial Classification (SIC) Codes 10-17 and 60-89, except for private households (SIC 88). In National Science Foundation publications it excludes educational services (SIC 82).

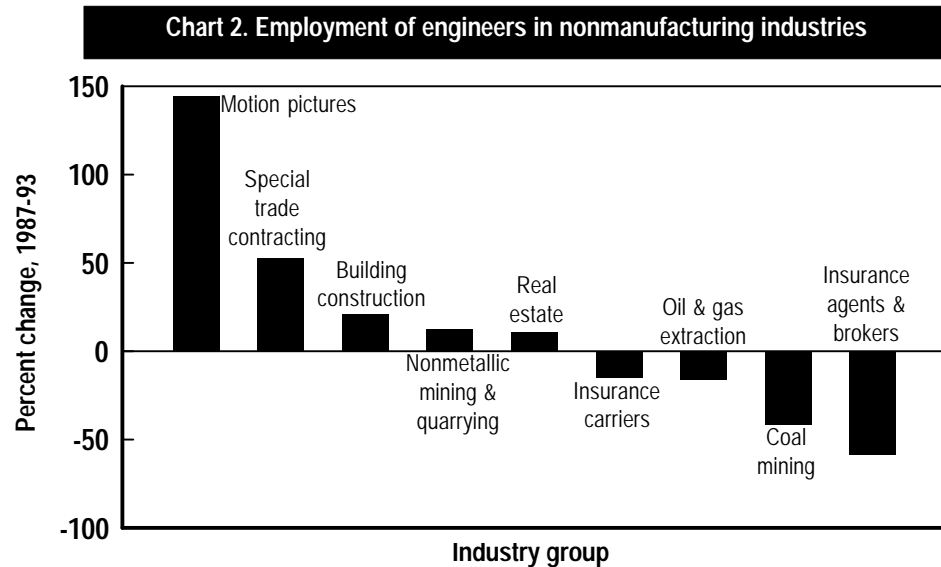
Membership organizations similarly employed more than twice as many scientists in 1993 (4,400) as they had in 1987 (2,100). Occupational classifications primarily accounting for this growth were life scientists, economists (who more than quintupled), and computer analysts. Other industries whose employment of scientists increased markedly between 1987 and 1993 included motion pictures, insurance agents and brokers, social services, holding and investment offices, security and commodity brokers, and insurance carriers.

Nonmanufacturing employment of engineers increased most significantly between 1987 and 1993 in motion pictures (144 percent), special trade contracting (53 percent), building construction (21 percent), nonmetallic mining and quarrying (13 percent), and real estate (11 percent). Engineering employment fell in insurance carriers (15 percent), oil and gas extraction (16 percent), coal mining (41 percent), and insurance agents and brokers (58 percent). [Chart 2] Overall employment of engineers in nonmanufacturing increased from

R&D S&E Employment

The situation was not quite as favorable for scientists and engineers employed in research and development (R&D) as for overall nonmanufacturing S&E employment between 1990 and 1993 (data on S&Es in R&D are not available for 1987). Employment of S&Es in R&D grew from 76,400 in 1990 to 83,200 in 1993, a 9-percent increase, as opposed to the somewhat larger 10-percent increase in overall nonmanufacturing S&E employment, from 868,000 in 1990 to 953,900 in 1993. Employment of R&D scientists increased only from 36,700 to 39,500 (8 percent) while overall non-manufacturing employment of scientists increased 11 percent, from 424,500 to 469,600. (For the longer six-year period overall nonmanufacturing S&E employment jumped 40 percent from its 1987 level of 333,100.) R&D engineers actually fared a bit better than their scientist counterparts, with employment of R&D engineers increasing from 39,700 to 43,700 (10 percent) from 1990 to 1993, slightly higher than the 9-percent increase from 443,500 to 484,300 in overall employment of engineers in nonmanufacturing.

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SOURCE: U.S. Department of Labor/Bureau of Labor Statistics, Occupational Employment Statistics survey

From 1990 to 1993 employment of R&D scientists dropped to an imperceptible level in metal mining and fell 43 percent in oil and gas extraction. Moderate increases were registered in business services (12 percent) and in engineering and management services (17 percent).

R&D engineering employment was cut in half in oil and gas extraction and fell by 17 percent in engineering and management services. Countering this overall downward movement in R&D S&E employment was a 123-percent jump in employment of R&D engineers in business services.

Employment of Technicians

The number of technicians employed in nonmanufacturing rose from 611,000 in 1987 to 706,800 in 1990 and then dropped to 680,900 in 1993, an increase of 11 percent over the six-year period but a 4-percent decline from 1990 to 1993. Over the 1987-93 period significant reductions in technician employment were suffered in coal mining (31 percent), heavy construction (15 percent), nondepository credit institutions (33 percent), and security and commodity brokers (73 percent). Noteworthy increases occurred in motion pictures (54

percent), amusement and recreation other than motion pictures (107 percent), health services (162 percent), social services (56 percent), and membership organizations (118 percent).

The employment market for nonmanufacturing technicians engaged in R&D was considerably brighter than for either R&D scientists or R&D engineers, however, and comparatively even more favorable than for nonmanufacturing technicians not engaged in R&D. The 4-percent decline in overall nonmanufacturing technician employment was offset by a 19-percent increase in employment of R&D technicians in nonmanufacturing, from 33,500 in 1990 to 39,800 in 1993. Among those industries employing more than a handful of R&D technicians, the largest increases were registered by business services (73 percent) and by computer and data processing services (78 percent).

The data in this Data Brief are drawn from the Bureau of Labor Statistics Occupational Employment Statistics

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(OES) survey and are being released in advance of the comprehensive Detailed Statistical Tables report *Scientists, Engineers, and Technicians in Nonmanufacturing Industries: 1993*.

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