

Industry Salaries Still Rising

One bright spot amid the news of economic downturns in the U.S. industrial sector during 2002 was the higher salaries paid to physicists and other related scientists working in industry. Salaries reported by these scientists in a recent survey by the American Institute of Physics (AIP) rose sharply in 2002 compared with 2000. The median salary reported by Ph.D.'s in the private sector in 2002 was nearly 11% higher than that reported two years earlier.

Respondents to the AIP's biennial Membership Sample Survey reported a median salary of \$100,000 in 2002 for Ph.D. members of AIP's 10 Member Societies working in industry, up from \$90,200 in 2000. This 11% median salary increase is higher than the 7% rise reported between 1998 and 2000 ("Industrial salaries surge again," February 2001, pp. 8–9), and it continued a salary surge that began in 1996. The increase in salaries for industrial Ph.D.'s exceeds the 5.9% inflation

rate measured by the Consumer Price Index for All Urban Consumers (CPI-U) for 2000–2002. The CPI-U covers about 87% of U.S. consumers. Similarly, the industrial Ph.D.'s in a 2002 survey of the American Chemical Society reported salaries that were approximately 10% higher during that same period—\$94,000 in 2002, up from \$85,200 in 2000.

Industrial physicists who received their doctorates within the last five years reported a typical salary range of \$70,000 to \$95,000. The typical salary range covers the middle range of salaries, that is, between the 25th and 75th percentiles. The median

salary reported by this group was \$82,000, which was also nearly 11% higher than the median salary reported in 2000 by industrial Ph.D. physicists in their early careers.

Overall, society members with Ph.D.'s working in industry reported the third-highest median salary, \$100,000. Ph.D. respondents working in hospitals and medical services earned the highest median salary,

unemployment rate turned upward to 1.2% in 2002 from the 0.7% reported in 2000. The Ph.D. unemployment rate is characteristically higher among those in early careers (Figure 1). The unemployment rate was 1% and below for Ph.D.'s with at least 10 years experience. In the broader scope, the Labor Department reported in its Current Population Study that unemployment rose for Ph.D.'s to 1.6% in 2002, up from 0.9% in 2000. The trend of rising salaries and unemployment rates mirrors the findings of a related employment study. From annual surveys of its U.S. members, the American Chemical Society reported a jump from 1.9% unemployment among its member Ph.D. chemists in 2000 to 3.1% in 2002.

The U.S. Census Bureau reports that earnings increase with educational attainment. For AIP society members, this holds true throughout most careers. The median salary for Ph.D.'s aged 35 to 44 was \$95,000; for master's, \$87,000; and bachelor's, \$78,000.

The Pacific region, which includes Alaska, California, Hawaii, Oregon, and Washington, reported the highest typical salary range for industrial Ph.D.'s at \$88,000 to \$127,000 (Table 1). The Middle Atlantic states ranked second with a typical salary range of \$90,000 to \$124,000. The New England and West South Central regions, tied with a range of roughly \$85,000

to \$118,000, followed the Middle Atlantic region. The South Atlantic region had the lowest reported typical salary range, \$73,500 to \$115,00.

The industrial sector employs more than one-fifth of society members with doctorates. The salary distribution

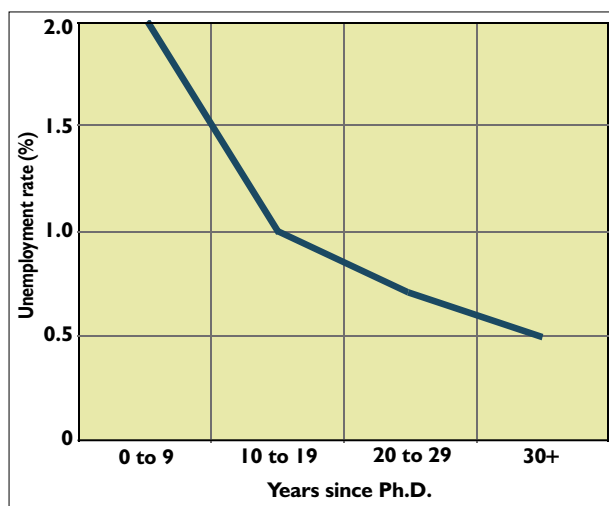


Figure 1. Unemployment rate by years since Ph.D., 2002.

\$109,900. Federally funded R&D centers paid society members with Ph.D.'s the second-highest median salary, \$104,000. Ph.D.'s on 9- to 10-month contracts at four-year colleges received the lowest median salary, \$55,000, up from \$50,000 two years ago.

Among society members with Ph.D.'s, the

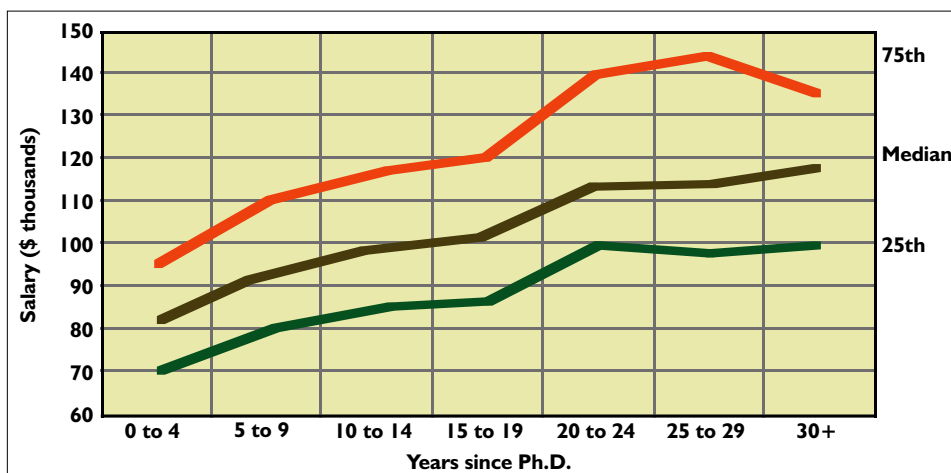


Figure 2. Typical industrial salary ranges in 2002 versus years since Ph.D.

| Region | Typical salary range, \$ thousands | Median age | Number of respondents |
|--------------------|------------------------------------|------------|-----------------------|
| New England | 86.0–118.2 | 47 | 127 |
| Middle Atlantic | 90.0–124.0 | 44 | 204 |
| South Atlantic | 73.5–115.0 | 47 | 140 |
| East North Central | 80.0–120.0 | 48 | 92 |
| East South Central | * | * | * |
| West North Central | 80.5–101.6 | 43 | 41 |
| West South Central | 85.0–118.0 | 44 | 82 |
| Mountain | 77.0–112.0 | 45 | 107 |
| Pacific | 88.0–127.0 | 44 | 342 |

An asterisk (*) denotes that the number of respondents was too small to calculate reliable statistics. Postdoctorates are not included. Typical salary range includes the middle range salaries, i.e., between the 25th and 75th percentiles. Median age is the middle value when all the ages are ordered from lowest to highest. New England—CT, ME, MA, NH, RI, VT; Middle Atlantic—NJ, NY, PA; South Atlantic—DE, DC, FL, GA, MD, NC, SC, VA, WV; East North Central—IL, IN, MI, OH, WI; East South Central—AL, KY, MS, TN; West North Central—IA, KS, MN, MO, NE, ND, SD; West South Central—AR, LA, OK, TX; Mountain—AZ, CO, ID, MT, NE, NM, UT, WY; Pacific—AK, CA, HI, OR, WA.

Table 1. Industrial salaries of Ph.D.'s by geographic region, 2002.

stays fairly narrow in the early career years and widens somewhat 20 years after a scientist receives his or her Ph.D. (Figure 2).

More Ph.D. society members employed in industry report holding jobs in short-range research (46%, the same percentage as in 2000) than in any other work activity (Table 2). Short-range research includes development, design, and engineering (27%) and short-range applied research

(19%). Another 21% perform long-range applied and basic research activities. Administrators make up 13% of this workforce, down from 16% two years ago, and consultants make up 10% of the Ph.D.'s. The remaining 10% of the society members with doctorates work in areas such as clinical medicine and computer applications. The salary structure for Ph.D.'s working in industry was similar regardless of work

SOURCE OF SURVEY DATA

The AIP Membership Sample Survey is the largest survey conducted by the AIP's Statistical Research Center (SRC), and for the first time, the 2002 survey was completed entirely electronically. More than 19,300 individuals, approximately one-fourth of the U.S. members of the AIP's Member Societies, were selected on the basis of a stratified random sample and asked to report their salary and employment data as of October 2002 in this survey. Nearly 11,600 responded, for a 60% response rate, after three e-mail requests.

The data represent responses from members of the American Physical Society, Optical Society of America, Acoustical Society of America, The Society of Rheology, American Association of Physics Teachers, American Crystallographic Association, American Astronomical Society, American Association of Physicists in Medicine, AVS Science and Technology Society, and American Geophysical Union.

The SRC conducts research and provides survey services. Within the research portion of its mission, the SRC collects, analyzes, and disseminates data on education and employment in physics and related fields. The next Membership Sample Survey will be conducted in 2004.


activity. The exception was among society members working as administrators, who most often moved into higher-paying non-research positions late in their careers.

The companies that employed the largest number of society members were Scientific Applications International Corp., IBM Corp., Lockheed Martin Corp., and Raytheon Co. General Atomics, IBM, and Lockheed Martin employed the largest number of Ph.D. physicists who are society members. Since the time of the survey, however, Northrup Grumman Corp. has acquired TRW, Inc., which would likely cause Northrup Grumman to rank high among the top employers of industrial physicists.

Detailed salary tables for the 2002 data are available for purchase at <http://www.aip.org/statistics/salaries>. These tables include the salary data by other

| Work Activity | % |
|---|-----------|
| Short-range research | |
| Development, design, and engineering | 27 |
| Short-range applied research | 19 |
| Long-range research | |
| Long-range applied research | 16 |
| Basic research | 5 |
| Administrators | 13 |
| Consultants | 10 |
| Other | 10 |

Table 2. Industrial Ph.D.'s by work activity, 2002.

employment sectors and geographical breakdowns. Companies and academic departments have used the results of the AIP Membership Sample Survey to review organizational pay structures and salary negotiations. Professionals, teachers, parents, and students have used these results in their education and career decisions. 

B I O G R A P H Y

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