



by Mark C. Regets

WHAT FOLLOWS THE POSTDOCTORATE EXPERIENCE? EMPLOYMENT PATTERNS OF 1993 POSTDOCS IN 1995

Division of Science Resources Studies

ISSUE BRIEF

November 27, 1998

More than 40 percent of 1993 postdoctorates remained in postdoc positions two years later.

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NSF 99-307

With increased use of postdoctoral positions or "postdocs" in many fields of science and engineering (S&E)¹, there is greater interest in where people find employment after completing their postdocs. Anecdotally, postdoc experiences are said to be most valued by academia, and hope for an academic career is held to motivate many postdocs. This issue brief examines the April 1995 career status of S&E doctorates who had been in a postdoc position in April of 1993, with a focus on academic and industrial employment.

A large number remained as postdocs

A large proportion of those in postdoc positions in April 1993—42 percent—remained in such positions by April 1995. The highest² rates of retention in postdoc status were found in the life sciences (48 percent each in the biological and agricultural sciences) and in physics (43 percent); rates in the earth, atmospheric, and

ocean sciences; psychology; and chemistry ranged from 34-35 percent. These six S&E fields accounted for around 90 percent of all S&E postdocs in 1995 (table 1).

Few who left postdocs obtained tenure-track positions

By 1995, about one-third of the 1993 postdocs had found academic employment. However, only 12 percent were in tenure track positions at 4-year colleges or universities, a rate that varies little across five of the six major postdoc fields (the exception was agricultural sciences with 6 percent). Another 21 percent had appointments ranging from low-pay adjunct teaching positions to somewhat better paying jobs with research or administrative responsibilities. Industrial employment was reported by 17 percent; the remainder was in Government or nonprofit sectors. Fewer than 2 percent were unemployed, and only a small number—

Table 1. What were 1993 postdocs doing in 1995?
Selected science and engineering fields

Field of Ph.D.	1995 Employment of 1993 Postdocs (Percent of those in the labor force)					
	Postdoc	Tenure Track at 4-Yr. Inst.	Other Education	For-Profit	Non-Profit / Government	Unemployed
All S&E Fields.....	41.6	12.1	21.1	16.6	6.9	1.6
Agricultural Science.....	47.5	5.8	18.9	15.8	6.7	5.4
Biological Sciences.....	47.8	12.0	20.5	12.9	4.9	1.9
Chemistry.....	35.2	13.2	12.5	32.0	6.4	0.9
Earth, Atmos., and Ocean Sciences.....	34.0	12.6	33.2	7.8	12.5	0.0
Physics.....	43.0	12.7	20.9	14.7	6.2	2.6
Psychology.....	34.4	11.3	28.2	15.1	11.0	0.0

NOTE: These six fields accounted for about 90 percent of S&E postdoctorates in 1995.

SOURCE: National Science Foundation, Division of Science Resources Studies, Survey of Doctorate Recipients, 1993 and 1995.

¹ See the forthcoming NSF Issue Brief, *Has the Use of Postdocs Changed?* for a discussion of the prevalence and length of postdocs.

² Differences between percentages discussed in the text of this Issue Brief are statistically significant.

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As with earlier cohorts of postdocs, only a minority of 1993 postdocs left for tenure track positions.

3 percent—reported that they were employed in a job unrelated to their degree because a job related to their degree was not available.³

Are current post-postdoc job patterns different from before?

A rough impression was gained of previous postdoc employment transitions by examining the work status in 1995 of 1965-84 S&E Ph.D.s who were former postdocs. Approximately equal numbers of these mid- to later career doctorates—34-35 percent—were working in private for-profit firms and in tenure track (or tenured) positions at 4-year institutions respectively⁴; another 15 percent held other academic jobs. The Government and non-profit sectors employed another 15 percent. Less than 2 percent were unemployed. These findings suggest that previous cohorts of postdocs also entered a wide range of employment sectors besides academia (table 2).

Table 2. What were 1965-84 Ph.D.s with any postdoc experience doing in 1995? Selected science and engineering fields

(Percent of those in labor force)

Field of Ph.D.	Tenure Track at 4-Yr. Inst.	Other Education	For-Profit	Non-Profit / Government	Unemployed
All S&E Fields.....	34.3	14.6	34.5	15.2	1.4
Agricultural Science.....	41.9	14.0	25.7	16.8	1.7
Biological Sciences.....	40.4	16.5	26.9	14.6	1.7
Chemistry	26.0	9.1	52.3	10.7	1.8
Earth, Atmos., and Ocean Sciences.....	37.9	11.8	18.6	30.9	0.8
Physics.....	31.2	15.4	35.8	17.2	0.5
Psychology.....	26.3	16.4	38.9	18.1	0.3

NOTE: These six fields accounted for about 90 percent of S&E postdoctorates in 1995.

SOURCE: National Science Foundation, Division of Science Resources Studies, Survey of Doctorate Recipients, 1995.

³ See NSF Issue Brief 97-321, *What's Happening in the Labor Market for Recent Science and Engineering Ph.D. Recipients*, for a discussion of unemployment and involuntary out-of-field rates for recent Ph.D. graduates.

⁴ Former postdocs are more likely to be in tenure track positions than non-postdocs—34 percent versus 27 percent.

The longer the time since the Ph.D., the lower the chance for a tenure track appointment

For the biological sciences, the field that dominates the S&E postdoc numbers, the rate of transition to tenure track positions initially increases with time since degree: from 7 percent for those only 1-2 years after their degree in 1993 to 20 percent for those 5-6 years after degree. Only after 6 years does the rate of transition from postdocs to tenure track employment decline sharply to 13 percent⁵ (figure 1).

But the pattern was sharply different for postdocs in all other fields combined. For them, the longer the time since earning their doctorates, the lower the likelihood of a tenure track position in 1995. Fourteen percent of 1993 postdocs with degrees earned 1-2 years earlier transitioned to tenure track positions, but only 10 percent of those who had earned degrees 3-6 years earlier and only 7 percent of those more than 6 years since their degrees. This pattern was particularly pronounced for physics postdocs: from 14 percent for those 1-2 years since their doctorates to only 7 percent for those who had earned their degrees 3-4 years earlier.

This Issue Brief was prepared by:

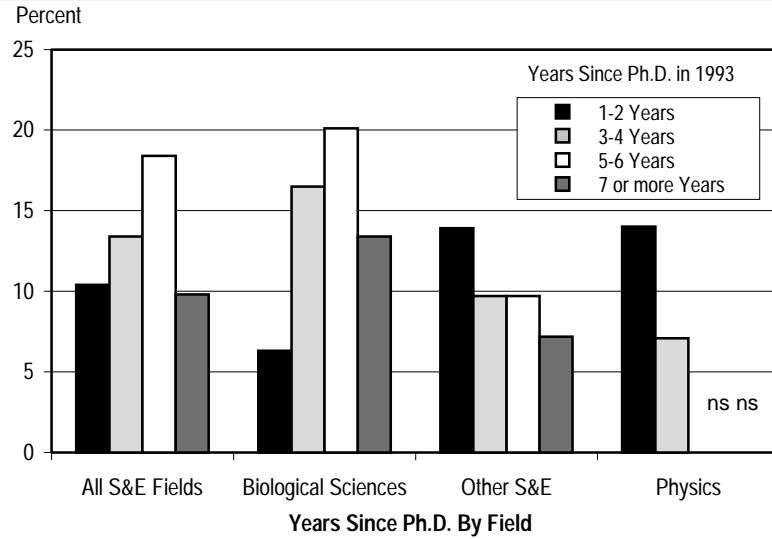
Mark C. Regets
Division of Science Resources Studies
National Science Foundation
4201 Wilson Boulevard, Suite 965
Arlington, VA 22230

703-306-1776 x6923
mregets@nsf.gov

⁵ The differences between each of these postdoc transition rates are statistically significant.

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Figure 1. Percent of 1993 postdocs in tenure track positions in 1995: by years since degree in 1993



NOTE: There were insufficient numbers of physics doctorates more than 4 years since degree to report transition rates (ns=not sufficient).

SOURCE: National Science Foundation, Division of Science Resources Studies, Survey of Doctorate Recipients, 1993 and 1995.

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