

# The Employment Market for Early Career Mathematicians

In January 2009, motivated by concern about the impact of current economic conditions on the job market for recent Ph.D.s, AMS President James Glimm appointed a Task Force on Employment Prospects chaired by Linda Keen and including broad representation of the mathematics community. The goal of the task force was to provide information and recommendations to departments, individual job seekers, and professional societies to help them with challenges of the difficult market. In mid-May, the Task Force reported to the Society's Executive Committee and Trustees, and the report was then sent to all Ph.D.-granting mathematical sciences departments in the U.S.

We encourage everyone to review the Task Force report, available at <http://www.ams.org/prof-services/employtaskforce/ETF.html>.

Results of the 2009 Annual Survey are not yet final, but it seems that the number of people receiving doctoral degrees will be close to last year's number, 1,378. Excluding doctoral degrees from statistics departments, there were 1,061 new Ph.D.s in 2007-08. Analysis of a quick survey of representative departments in February 2009 forecasts that the total number of academic positions available for these new doctoral candidates is 918, down about 39% from the previous year. The responses also indicate that these students are applying primarily for academic positions. Typically (based on Annual Survey reports) more than 10% of new doctoral recipients take positions outside the U.S., and about 75% of those employed in the U.S. take academic positions.

It is important to note that there are young mathematicians exiting postdoctoral and instructorship positions who are also candidates for the estimated 918 positions being recruited. To put the count of 918 in perspective, the 2007 Annual Survey reported 1,543 academic positions open to new mathematics doctoral recipients in 2006-07. Academic recruitment has been severely affected by the economic crisis.

The profession has experienced difficult employment markets in previous recessions and earlier task forces have helped the community weather those crises.

In the mid-1990s, the Society adopted a statement of supportive practices for the employment of young mathematicians. The policy statement was revisited by the Council in 2007 and can be found at <http://www.ams.org/secretary/supportivepractices.html>. The practices are designed to increase as much as possible the stability of academic jobs in an unstable market.

The last prolonged period of a difficult job market was 1991 to 1996. We should be prepared for the possibility of another prolonged downturn now simply because it

takes several years for state tax revenues to return to pre-recession levels.

The Task Force report makes several recommendations related to employment in business, industry, and government. In particular, it recommends that graduate students include some course work in mathematical areas that are recognized in nonacademic settings as being applicable. It also recommends that departments (i) encourage their students to broaden their employment options and (ii) improve their advising resources related to nonacademic employment. The Society will make a concerted effort to provide information resources to Ph.D.-granting departments to help them with career advising.

While the majority of new Ph.D.s has always taken employment in the academic sector, there have been two significant changes in patterns of employment since the early 1990s.

First, there are many more postdoctoral and named instructorship positions today than there were then. It is now common for a new Ph.D.'s first position to be a postdoctoral position. Further, as soon as the downturn in academic recruitment this past year was recognized, the National Science Foundation responded with a big increase in postdoctoral support for 2009.

Second, the proportion of new Ph.D.s taking nonacademic employment has increased substantially. Before 1995 the proportion of new Ph.D.s taking nonacademic employment was typically 16% to 18%. In contrast, in all three of the years 2006, 2007, and 2008, the proportion taking nonacademic employment exceeded 24%.

Both of these changes mean that today's job market is more flexible and has more dimensions that are capable of adapting to economic conditions. This is important because, through these times, we want to sustain vibrant graduate programs to nurture the best young talent, with reasonable assurance of rewarding career opportunities when the new graduates enter the job market.

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