

Item 8 was supposed to be an article summary, though it is a sloppy job. I edited and rewrote it.

Item 8, unedited

8. “Is It Time to Begin Ph.D. Population Control? *Science* 270:123-128, 1-N5.

The ACS has concluded chemistry doctorates are being overproduced by about 12% a year. Such circumstances are a dramatic turnaround from conditions just a few years ago. In the 1980s the NSF triggered alarms about the shortfall of scientists predicted for the year 2000. Today, many still contend that Ph.D.s are facing a bright future, but not necessarily in academic research. But growing number of scientists argue that a combination of circumstances—chiefly flat federal funding for universities and science agencies, which limits the creation of new jobs in science and sets the stage for cutbacks, have changed the Ph.D. picture for the worst. Academic openings, already scarce, are getting scarcer. The situation is confusing because the unemployment rate for scientists hovers around 2% and job opportunities for the private sector field-switching are abundant. Many may either be in temporary positions or in jobs that don’t require advanced training. So it all depends on broad or narrow defining of appropriate work. Many believe a Ph.D. will enhance your contribution to many disparate professions. Others cherish a more purist vision.

The increase in the number of Ph.D.s churned out by U.S. universities over the past decade is mostly attributable to a sharp increase in the numbers of science and engineering graduate students from foreign countries. According to COSEPUP, they now make up one-third of graduate students compared to one-fourth a decade earlier. They must be taken into account in any overview of the presumed glut of Ph.D.s in the U.S. Hard to estimate, however, how many remain in the U.S. after finishing their training. The best estimate currently is about 50%. Foreigners may be making it harder for U.S. citizens to get jobs. Employers want the best. Graduate schools give the edge to U.S. citizens for admission. Employers don’t like the paperwork involved in hiring noncitizens. Some think the foreign presence may have already peaked.

Many believe that cuts go against the fundamental forces driving science in the U.S. Schools need students to keep the machinery of teaching and research humming. Investigators want to maintain their lab size because it provides the best opportunity for getting funded. In biology, setting absolute caps on enrollment is rare despite all the money worries. As for chemistry, the ACS task force is now determining ways to deal with the surplus it has identified. Smaller departments might be target for elimination but the ACS survey shows that graduates of small programs have been able to find employment. Best is to cut the lowest quality programs first. But quality is a qualitative issue. Need to develop a set of qualitative measures. While few programs are deliberately reducing numbers, others are upping admission requirements.

Item 8, edited

8. “Is It Time to Begin Ph.D. Population Control? *Science* 270:123-128, 1-N5.

The American Chemical Society (ACS) has concluded that chemistry doctorates are being overproduced by about 12% a year. Such circumstances are a dramatic turnaround from conditions just a few years ago. In the 1980s the National Science Foundation (NSF) triggered alarms about the shortfall of scientists predicted for the year 2000.

Today, many still contend that Ph.D.’s are facing a bright future, but not necessarily in academic research. However, a growing number of scientists argue that a combination of circumstances—chiefly flat federal funding for universities and science agencies, which limits the creation of new jobs in science and sets the stage for cutbacks—have changed the Ph.D. picture for the worse. Academic openings, already scarce, are getting scarcer.

The situation is confusing because the unemployment rate for scientists hovers around 2%, and job opportunities for scientists in the private sector are abundant. [AU: IS PREVIOUS SENTENCE ALL RIGHT AS EDITED?] However, many scientists either may hold temporary positions or have jobs that don’t require advanced training. So it all depends on how broadly or narrowly “appropriate work” is defined. Many believe that a Ph.D. will enhance a person’s contribution to many disparate professions. Others cherish a more purist vision.

The increase in the number of Ph.D.’s churned out by U.S. universities over the past decade is mostly attributable to a sharp increase in the number of science and engineering graduate students from foreign countries. According to the Committee on Science, Engineering, and Public Policy, they now make up one third of the graduate students compared with one fourth a decade earlier, even though graduate schools give the edge to U.S. citizens for admission. Students from foreign countries must be taken into account in any overview of the presumed glut of Ph.D.’s in the United States. Although it is difficult to determine how many of these students remain in the United States after finishing their training, the current estimate is about 50%.

Some think that the foreign presence in the U.S. job market may have already peaked. Although foreigners may be making it harder for U.S. citizens to get jobs, employers don't like the paperwork involved in hiring noncitizens.

Many believe that cuts in support of basic research go against the fundamental forces driving science in the United States. Schools need students to keep the machinery of teaching and research humming. Investigators want to maintain their laboratory size to ensure the best opportunity for getting funded. In biology, setting absolute caps on enrollment is rare, despite all the concerns about budget deficits. To maintain academic quality, smaller departments might be targeted for elimination, but the ACS survey shows that graduates of small programs often have been able to find employment. The best strategy might be to cut the lowest-quality programs first. Quality, however, often is difficult to measure. Although few programs are deliberately reducing the number of students, others are upping admission requirements.