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Good News for Humanists, Bad News for Humanities Departments

Research by Two Princetonians
Concludes that Humanists and
Social Scientists Will Be in Short
Supply by 2000



J. KELLUM SMITH JR.

Julie Ann Sosa '88 and William G. Bowen '58

IN THEIR BOOK *Prospects for Faculty in the Arts and Sciences*, William G. Bowen '58 and Julie Ann Sosa '88 examine academic labor markets over the next quarter-century. The first rigorous analysis of factors affecting supply and demand in these markets, it projects severe shortages of faculty members unless efforts are made now to strengthen graduate programs. A review by Ronald Ehrenberg, of Cornell University, for the *Journal of Economic Perspectives* called the book "the most important analysis of academic labor markets" since the mid-1970s.

Bowen, president of Princeton from 1972 to 1988,

is president of the Andrew W. Mellon Foundation. His fields of academic interest are labor economics and the economics of higher education. Sosa, who as an undergraduate majored in the Woodrow Wilson School and served as chairman of the *Daily Princetonian*, is a Daniel M. Sachs '60 scholar at Worcester College, Oxford University.

The following interview with Bowen and Sosa was conducted by Princeton's director of communications, Justin Harmon '78. Copies of the book are available for \$24 from the Princeton University Press, 3175 Princeton Pike, Lawrenceville, NJ 08648.

What did you set out to learn with this study?

BOWEN: The principal questions were, Are there reasons to expect academic labor markets in the future to be appreciably tighter or looser than those we have experienced in recent years? What is the outlook for faculty staffing in the arts and sciences? Should we anticipate shortages? Or should we discourage students from pursuing academic careers because we think there will be depressed times ahead?
SOSA: When the Mellon Foundation surveyed a group of college and university presidents, there was near-consensus that there are going to be staffing problems. However, there was no real body of evidence to support their concerns. There have been many studies of the outlook for

staffing in the sciences and engineering, but no comparable work existed for the humanities and the social sciences.

What did you conclude about the outlook for staffing in the arts and sciences over the next quarter-century?

BOWEN: The framework of the study is a supply and demand apparatus, and it is important to distinguish between projections and predictions. Our projections show what *may* occur given current trends. We found that academic labor markets in the arts and sciences will tighten. We expect the most pronounced changes late in the 1990s, specifically between 1997 and 2002. The trends we project mean that it is likely to become harder to staff colleges and universities.

In describing the degree of tightness, we use the expected ratio of candidates to positions. We estimate that, in the period we've just been through, this ratio has been about 1.6 candidates per position. We think a reasonable norm is something like 1.3 candidates per position.

Why 1.3 specifically?

BOWEN: We would not go to our graves insisting on that as the norm, though it does seem reasonable on the basis of historical experience. But we would insist that the optimal ratio is greater than 1.0. Prospective faculty members prepared in one field are not usually qualified to fill positions in another field. Similarly, some candidates will want to work in some parts of the country, while the jobs may exist in other parts.

What are some of the ratios you project?

SOSA: We present four models that match supply with demand under different assumptions about such things as trends in the arts-and-sciences share of enrollments and in student-faculty ratios. Although the models make different assumptions, there is considerable congruence in their results, especially from 1997 onward.

We give the most emphasis to the model that assumes that both arts-and-sciences shares of enrollments and student-faculty ratios will remain stable. For this model, between 1987 and 1992, we project about 1.6 candidates for every position. By the period 1997 to 2002, that dips to 0.83 candidates for every position. Then the ratio holds roughly steady through 2012.

If you look specifically at the humanities and the social sciences in the base period 1987 to 1992, the ratio of candidates to positions is 1.36. By 1997 to 2002, the ratio falls to 0.71. This is one of the major findings of the study: we project that shortages will be more severe in the humanities and social sciences than in the arts and sciences generally. Most people would not have expected this result.

Why is this a surprise?

BOWEN: Mainly because so little has been done to study the humanities and social sciences. Almost everyone has focused on engineering, mathematics, and the physical and natural sciences. We're certainly not trying to downplay the seriousness of the problems that face the country in staffing those areas. They are very real. But we are suggesting that the problems are every bit as serious, and perhaps more serious, in the humanities and social sciences.

In relative terms, where do physics, mathematics, and the biological sciences come in?

SOSA: Mathematics and the physical sciences will both experience severe shortages as well. For them, the ratio is 0.80 candidates per position during the period 1997 to 2002. The biological sciences and psychology will show much less pronounced imbalances.

What differences do you find among the various sectors of education?

SOSA: The most pronounced shortages will mainly be a function of the age distributions of the respective faculties. Our projections indicate that the liberal-arts colleges and the large comprehensive institutions will experience the most severe shortages. Large research universities like Princeton will also experience shortages, but these shortages will occur sooner and be less severe, again because of the age

distribution of their faculties.

BOWEN: But, in noting these differences, we would not want you to think that the general pattern is markedly different across these sectors. It isn't. Unless something changes, all types of schools will find it much more difficult to recruit faculty members ten years from now than they do today. As a consequence, institutions will be hard pressed to maintain the quality of their faculties. They may be compelled to appoint candidates they might have preferred not to appoint. There will be pressure to promote more quickly.

Heightened competition for faculty could take the form of offering lighter teaching loads. While that may work for one institution in bidding away people from other institutions, it's clearly no solution for the higher-education system as a whole. In fact, lighter teaching loads would aggravate the problem, and so we hope that it will not be the adjustment mechanism of choice.

It would be much better if salaries were to improve, and this should occur in any case. What would be most desirable is an increase in the number of candidates. Graduate programs must attract and retain larger numbers of well-qualified individuals.

Let's talk about your projections of supply. Would you describe the trends you've observed in the number of Ph.D.s awarded?

SOSA: The number awarded increased dramatically during the late 1950s and through the 1960s and reached a peak in about 1972. The number of U.S. residents receiving doctorates in all fields has declined significantly since then. These drops have been particularly pronounced in certain fields: mathematics, the humanities—especially foreign languages and literatures—and the social sciences.

BOWEN: At the same time, the share of doctorates heading into academia has fallen in almost all fields. That's in part because of the dismal academic labor markets of the 1970s. Many people who might have liked to have become academics had to find other employment. But that's by no means the full explanation. There simply have been many more attractive opportunities in fields outside higher education for people with doctorates.

Do you foresee any likely change in those trends?

BOWEN: Much will depend on policy decisions. The markets themselves will have an effect: that is, as academic labor markets tighten, more people will be encouraged to pursue Ph.D.s. There will be some automatic equilibration; but, in and of itself, this

will not be sufficient to meet the need. Without interventions in the system, we see no mechanism strong enough to bring the number of Ph.D.s awarded back to anything close to the 1972 levels.

SOSA: Over the last thirty years, there has been a marked shift in the relative numbers of Ph.D.s being trained in various sectors. The leading research universities previously trained something like 80 percent of new Ph.D.s. That share had fallen to about 60 percent by 1987.

This means that there is a qualitative dimension to the faculty staffing problem. Colleges and universities that have been accustomed to recruiting their faculty from what they regard as leading universities will find it more and more difficult to do so, particularly as academic labor markets tighten.

How do you estimate demand for faculty?

BOWEN: There are two components. One is demand related to the creation of new positions and is determined by enrollments, by the choices students make as to their field of study, and by student-faculty ratios. This component of demand can be positive or negative, because higher education can expand—in which case "net new positions" is a positive number—or it can contract—in which case net new positions is a negative number.

The other component of demand is replacement demand, which is generated by people dying, retiring, or leaving academia for other vocations.

What trend do you see in the demand for new positions?

BOWEN: Demographics indicate some continuing decline over the next few years in the age group that traditionally makes up most of the college-bound population. Later there will be a significant upswing, which is one of the major reasons we foresee a substantial tightening of labor markets. There will be more students to be taught in the late 1990s.

Won't enrollment rates change?

BOWEN: We have assumed that the percentage of any given age group going to college will remain constant through this period. Some people have suggested that such an assumption is very conservative, because, historically, enrollment rates have risen. If this trend continues, then the number of students to be taught, and thus the demand for faculty, will be greater than we have projected.

What do you project about enrollments across disciplines and across sectors of higher education?

SOSA: At both the graduate and under-

graduate levels, enrollments in the arts and sciences have dropped off severely. At the same time, students have migrated into fields that are more professionally oriented, like business and engineering. In 1970, about 40 percent of all degrees were conferred in the arts and sciences. By 1984, that number had dipped below 25 percent. The fastest, most severe shifts have been away from the humanities and social sciences. To us, the numbers were shocking. In 1970-71, more than 25 percent of all degrees were conferred in the humanities and social sciences. By 1984-85, the number had dropped below 15 percent and was approaching 10 percent. Within the humanities itself, it was something like 4.7 percent.

BOWEN: I think very few people would guess that less than 5 percent of all degrees conferred in the United States are in the humanities.

SOSA: It is interesting, too, that the flight from the arts and sciences has not been consistent across sectors, but has been more pronounced outside the research universities and the liberal-arts colleges. We may be seeing a growing specialization by sector.

We think that this is an important subject in itself. It obviously has implications beyond staffing, depending on whether one thinks that education in the arts and sciences ought to be concentrated in certain sectors of higher education.

projections of demand for faculty would again prove to be conservative.

What did you find when you measured replacement demand?

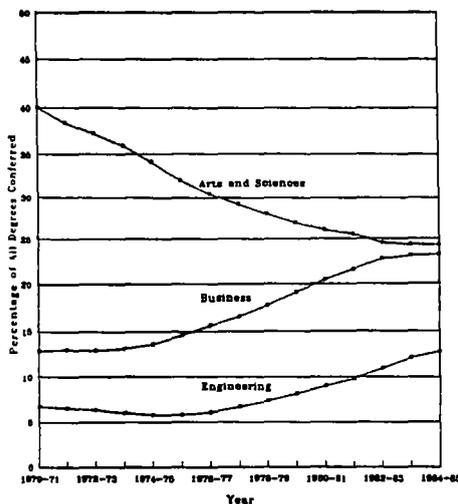
SOSA: We were able to document the aging of the faculty over the last ten years. The percentage of faculty members under the age of forty has declined, especially in certain fields of study. At the same time, the percentage of faculty members over forty-nine has gone up steeply.

BOWEN: We calculated what are called exit probabilities for each age group. The exit probability is the likelihood a person will retire, will die, or will simply leave academia. When you compare these probabilities to the age distribution, you find a smoother flow of people out of academia than most people had expected.

How will replacement demand contribute to overall demand for faculty?

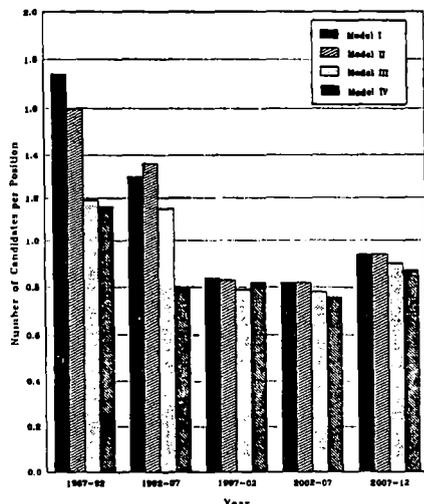
BOWEN: The replacement demand will be large. It's by far the larger of the two components of demand, and it will contribute substantially to the shortages we project. Moreover, it will be steadier over time than most people had expected. The replacement demand will be larger, for example, between 1997 and 2002 than in the earlier periods, though not dramatically so.

How about the number of new positions?



Left: Trends in degrees conferred, 1970-71 to 1984-85.

Right: Projected number of candidates per position, all arts and sciences.



Do you expect this flight of enrollments from the arts and sciences to continue?

BOWEN: It seems to have stopped. We seem to have hit a floor, or at least a plateau. In projecting demand, we have worked with a variety of assumptions, but we believe that the arts-and-sciences share is most likely to remain more or less constant. It could increase somewhat—regain some of the ground it has lost—and if that happens, our

SOSA: We anticipate a major change in the number of new positions in the 1990s. That's the really dynamic element causing projected shortages to become so large.

Between the intervals 1992-97 and 1997-2002, we project an increase in replacement demand of just under 2,000 positions. But we also project an increase in new positions of 12,200, because the number of net new positions shifts from a neg-

ative 3,600 to a positive 8,600.

Thus, while replacement demand will be high throughout the period we studied, and will be the dominant component quantitatively in each five-year interval, the demand due to net new positions will be much more volatile. It will change more from period to period, and thus it will be more responsible for the period-to-period shifts in the tightness of the academic labor markets.

Student-faculty ratios are the keys to translating anticipated changes in enrollments into actual demand for faculty. What trends do you see in these ratios?

BOWEN: Student-faculty ratios are very complicated. That's the sad reality for anyone studying this field. These ratios depend importantly on enrollments. When there are pronounced declines in enrollments in a particular field, the student-faculty ratios in that field should be expected to fall. That there are fewer students in a particular field does not mean there will be proportionately fewer classes or fewer faculty lecturing.

There was a drop in student-faculty ratios during the 1970s and the early part of the 1980s. It is now plausible to assume that student-faculty ratios will hold steady because the flight from the arts and sciences may be over. If the flight were to continue, student-faculty ratios would probably continue to drop. Conversely, if there were a recovery in arts-and-sciences enrollments, we would expect student-faculty ratios to rise, because larger numbers of students could be taught by the same complement of faculty members. The relationship is more or less symmetrical.

Looking at the policy implications, there will be an inevitable desire to wonder why institutions cannot be more responsive to enrollment in deciding the sizes of their faculties.

BOWEN: It's simply unrealistic to assume—because you may want to assume it—that, all of a sudden, student-faculty ratios are going to leap back up. We see no reason to believe that this will be the case.

It's possible that student-faculty ratios will be forced to rise because institutions simply will not be able to attract the faculty members they need. And so, willy-nilly, one adjustment mechanism could be a rise in student-faculty ratios. But that result has serious implications for the quality of the educational enterprise, whether you are thinking about teaching itself or about the attractiveness of the teaching profession to the ablest people.

The student-faculty ratio is best understood as the product of a whole set of forces, including market forces. It is certainly not something you can change by fiat.

What are some of the mechanisms that might help us adjust the imbalances of demand and supply that you project? Will salaries be an effective tool? Will retirement policies matter?

BOWEN: Salaries clearly will make some difference, but I think the evidence does not suggest that salary adjustments alone are likely to solve the problem.

Another, perhaps more surprising, conclusion we reached is that changes in the law having to do with retirements will be much less important in this context than has generally been assumed. People have often asked if an end to mandatory retirement ages would change this whole picture drastically. The answer is absolutely no. If retirement rates for each age group were cut in half, and a new equilibrium were reached after the initial shock to the system had been absorbed, the effect on the demand for faculty would be about 2 percent. And no one believes that retirement rates are going to be cut in half.

What other adjustment mechanisms might affect imbalances between demand and supply?

BOWEN: We've already talked about hiring standards, which can change. Greater use can be made of part-time faculty members. But the adjustment mechanism that seems to us to be the most preferable by far is to increase the number of graduate students who receive doctorates. We think there can be a significant recovery in the number of doctorates awarded in the arts and sciences.

How do we create that recovery?

BOWEN: Improved job opportunities themselves will encourage more students to begin graduate study. Some students already pursuing degrees may finish them more quickly. But much will depend on the emphasis universities give to graduate education and on the resources that are available to support it. The availability of fellowship assistance depends on decisions made by the federal government, as well as by universities.

But the whole process of graduate education is not well understood. We simply lack the information we need in order to make decisions about the future of graduate education. Our next research project is focused on that question.

What more do we need to know?

SOSA: We're collecting data from a set of universities across the country that will show the amount of time it takes graduate students to receive their Ph.D.s. We're also collecting data on how many people, once they enter graduate school, actually receive

their Ph.D.s. Preliminary data indicate surprisingly high attrition rates in many Ph.D. programs, as well as a very long time-to-degree. We're also studying how different forms of financial support affect completion rates and the time-to-degree of recipients.

BOWEN: One important question is whether it's more appropriate to invest financial-aid funds in multi-year fellowships for students who are just beginning their graduate work, or whether it's better to concentrate more resources on students who are approaching the end of their graduate studies.

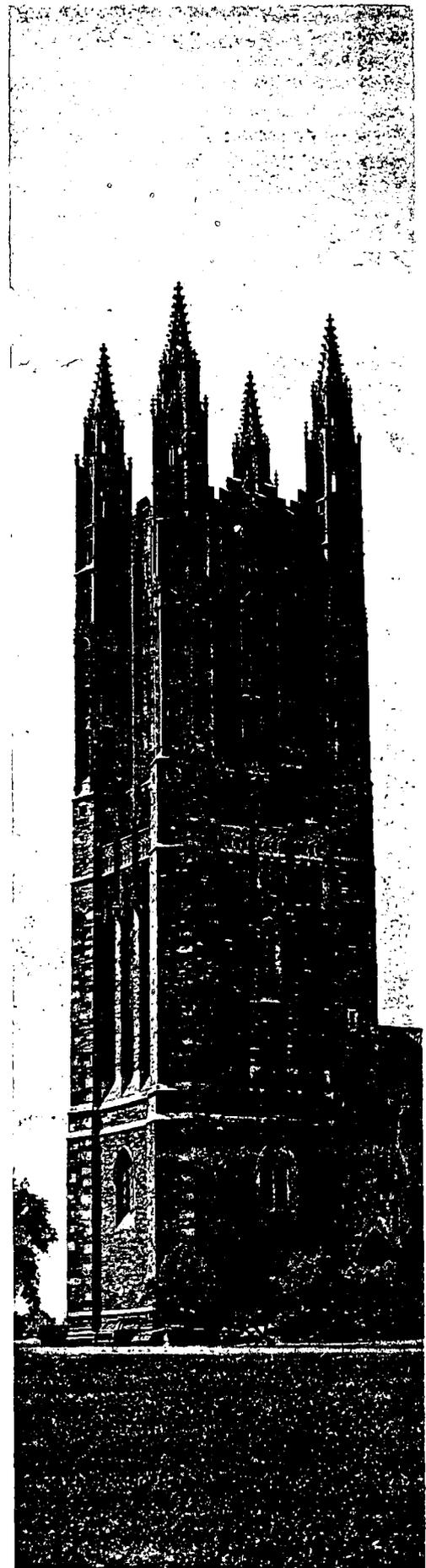
It's clear that the resources required to address the staffing problems we've identified are substantial. The resources that can be made available must be used as effectively as possible. We shouldn't simply ask public or private patrons to do more without first determining whether what is being done now is supporting graduate education as effectively as possible. Are there better approaches? What can the universities themselves do to improve the process of graduate education? What can individual departments do? These are some of the questions we are now studying.

What should we be doing to prepare ourselves to address the need for more Ph.D.s?

BOWEN: We hope that professors teaching undergraduates will encourage more of their able students to think seriously about graduate education in the arts and sciences. The Mellon Foundation supports a variety of programs intended to achieve that objective—especially for minority students.

What is needed is a renewed commitment to graduate education on the part of leading universities and, at the same time, a willingness by these universities to reexamine their present practices, particularly in the humanities and social sciences, to see if they are as conducive as they might be to getting graduate students through their schooling in reasonable amounts of time.

There is also an obligation to ask if we are investing sufficient resources in graduate education. My own view is that we are not, and that a greater national investment is required, primarily at the federal level. We ought to be thinking about the forms that investment should take, as well as about the deeper question of the long-term role of higher education in our society. □



Princeton Graduate College