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ABSTRACT

This publication reviews and analyzes the research on issues affecting faculty supply and demand in higher education and looks at how recent research can assess future trends. An introduction describes many researchers' prediction that three trends will soon create a faculty shortage: (1) increasing faculty retirements based on extensive hiring during 1960s and 1970s; (2) increasing college enrollments; and (3) declining numbers of doctoral recipients interested in a faculty career. The analysis then looks at factors affecting the demand side including changing educational programs; data on student enrollments; and expected replacement needs due to faculty attrition through mobility, death inservice, or retirement. This section concludes that intra-institutional movement as well as attrition are key areas where institutions need more information on faculty decisions to move from one college to another or to leave academe for other work. On the supply side the paper examines graduate school enrollments for doctoral degrees; labor-market competition from noneducational employers; and faculty recruitment. Finally the analysis examines projections for supply and demand based on the data and the assumptions involved. A final section concludes that the analysis raises many questions about the underlying quality of the available data and its collection. Contains 49 references. (JB).

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FACULTY SUPPLY AND DEMAND—DATA SOURCES AND DATA NEEDS

This issue of *Research Dialogues* presents a summary of a study soon to be published by the Western Interstate Commission for Higher Education (WICHE), *Bringing into Focus the Factors Affecting Faculty Supply and Demand: A Primer for Higher Education and State Policymakers*. The study is a comprehensive review and analysis of research on issues affecting faculty supply and demand in higher education.

The summary was prepared by Judith I. Gill, Director, Research and Policy Analysis, WICHE, who directed the study with the assistance of Steve Norrell, Assistant to the Chancellor, University of Alaska, Anchorage, and Vonda Kiplinger, research assistant.

The study was guided by an advisory committee of scholars on faculty issues: Dr. Robert Blackburn, Professor, Center for the Study of Higher and Postsecondary Education, The University of Michigan; Dr. John Creswell, Professor, University of Nebraska, Lincoln; Dr. Roslyn Elms, Assistant Vice Chancellor, University of California, Berkeley; Dr. Pamela Flattau, Senior Staff Officer, National Research Council; Dr. G. Gregory Lozier, Executive Director, Planning and Analysis, The Pennsylvania State University; Dr. Michael McGuire, Senior Planning Officer, Franklin and Marshall College; Dr. Kathryn M. Moore, Professor of Higher Education, Michigan State University; Dr. Jack H. Schuster, Professor, Claremont Graduate School, Claremont Colleges; and Dr. Sharon P. Smith, Dean of the College of Business Administration, Fordham University.

TIAA CREF

Introduction

Strategic planning for higher education's future needs for faculty requires reliable trend information. If accurate data are available and properly interpreted, we can make reasonable assessments about future demands on the system. And over the longer term, appropriate measures can be taken to secure a reasonable match between the demand for faculty and the supply.

Generally, educational researchers agree on three developing trends that will begin in about 1995 to affect higher education over the next ten to fifteen years. In themselves, the trends suggest a coming faculty shortage:

- ▲ Increasing faculty retirements, based on extensive faculty hiring during the 1960s and 1970s
- ▲ Increasing college enrollments
- ▲ Declining numbers of doctoral recipients interested in a faculty career

But researchers who agree about these trends are not all willing to predict faculty shortages. Some raise questions about the basic data: the way it is collected; its quality; its completeness; the fact that most of it is aggregated on a national level, making it virtually unavailable to assist planning on a state and institutional level, where most planning is done. Others question data analysis and the assumptions on which data projections are based.

The issue is critical. Even the possibility of a shortage in higher education's central resource—its faculty—is cause for concern. As a result, new research is now being done to identify initiatives to strengthen data collection so that data sources can better meet data needs.

This paper examines recent research on the information now being used to assess future faculty supply and demand. On the demand side, we look at changing educational programs; data on student enrollments; and expected replacement needs due to faculty attrition through mobility, death in service, or retirement. On the supply side, we look at graduate school enrollments for doctoral degrees, labor-market competition from noneducational employers, and faculty recruitment. And we look at the projections for both supply and demand that are based on such data.

The paper concludes with suggestions for initiatives that might further increase understanding of faculty supply and demand and help institutions in maintaining faculty of the highest quality.

Factors Affecting Faculty Demand

The demand for faculty is based on a network of factors: expected enrollments; numbers of students who can be served by each faculty member; instruc-

tional faculty needed for new courses and programs; research faculty needed in research and doctoral-granting institutions; and the number of faculty who must be replaced because of retirement, death, or attrition for other reasons. These demands vary over time and from one institution to another.

Much attention has focused recently on faculty replacement needs caused by attrition, mainly retirements. This is a demographic development that can be ascribed to the large numbers of new faculty hired during the growth years of the 1960s and early 1970s. However, retirement or leaving the higher-education field are only parts of the faculty demand equation. Another is interinstitutional mobility. Faculty mobility among institutions is not attrition from higher education but *is* a factor in faculty replacement on the front lines, i.e., at the institutional level.

We look at two major dynamics of faculty demand: (1) the various components of faculty attrition, and (2) the marketplace itself—student enrollments.

Faculty Attrition If faculty attrition is to be measured, the data must take into account the reasons:

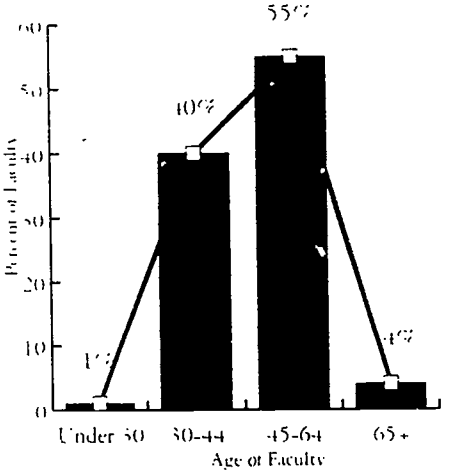
- ▲ Acceptance of nonacademic employment
- ▲ Denial of tenure or nonrenewal of contract
- ▲ Transfer to administrative or other nonfaculty higher education positions
- ▲ In-service mortality
- ▲ Retirement

Recent studies of faculty demand focus on faculty retirement, primarily influenced by recent attention to age discrimination issues, the relative availability of data, and the visible demographics of the faculty age profile (Bowen and Schuster, 1986; Bowen and Sosa, 1989; National Center for Education Statistics, 1990a).

The age profile of current faculty shows a "bulge" in the number who will reach retirement age by the year 2000 (Charts 1 and 2). The bulge comprises the large number of faculty hired between the mid-1960s and the early 1970s. Several studies predict that the aging of this large cohort will result in increases in retirements beginning in the late 1990s and continuing through the first decade of the twenty-first century (Lozier and Dooris, 1991; McGuire and Price, 1989).

Chart 1

Age Distribution of Full-time Faculty, Fall 1987



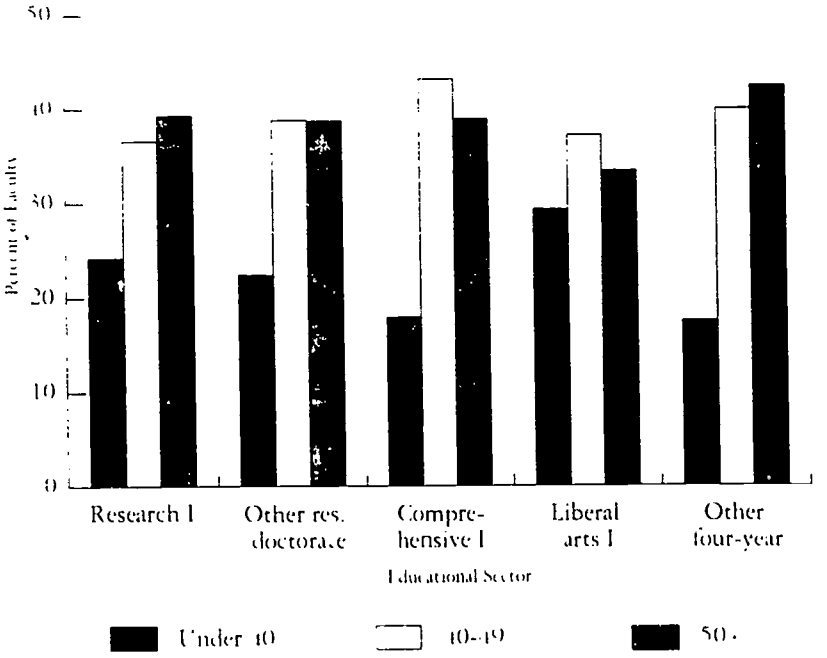
Source: National Center for Education Statistics, 1990b, p. 9.

Some researchers have suggested that coming changes in federal age discrimination rules may delay faculty retirements. (Amendments to the Age Discrimination in Employment Act in 1986 eliminated mandatory retirement altogether, starting in 1987, but granted an exception that permitted compulsory retirement at age 70 of tenured employees through December 31, 1993.) However, two recent studies concluded that the end of mandatory retirement will have little impact on faculty retirement decisions, i.e., faculty will continue to retire at about age 65 (Lozier and Dooris, 1991; Smith, 1991). And, reporting in May 1991 on a study Congress requested as part of the 1986 ADEA amendments, the Committee on Mandatory Retirement in Higher Education found that at most institutions, few tenured faculty would be likely to work beyond age 70 (Hammond and Morgan, 1991).

As for other faculty departures, it is assumed that a significant portion of faculty leave because tenure is denied. It is also assumed that those who leave

Chart 2

Age Distribution of Faculty by Educational Sector, 1987



Source: Bowen and Sosa, 1989, p. 17

higher education for reasons other than retirement or death are young and non-tenured, but at present the available data are insufficient to support or refute the assumptions.

What about tenured faculty who leave? Studies based on the limited data available indicate that faculty who leave higher education altogether generally do so because of a combination of low salary *and* poor working conditions. Some studies suggest that tenured faculty who remain in higher education but leave one institution for another do so in order to increase salary or to improve working conditions (Rosenfeld and Jones, 1988; Youn and Zelterman, 1988).

But existing data bases do not provide much information about attrition, including faculty mobility among institutions. If faculty replacement needs are to be effectively projected, college administrators need to know more than they now do about intra-educational transfer rates, as well as about attritions from higher education as a whole.

In addition to *rates* of turnover and attrition, the *causes* of faculty turnover need to be known. But definitive studies are not numerous. Ehrenberg et al. (1989) studied the effect of compensation rates on faculty turnover from 1970-71 through 1988-89. This study concluded that for full professors, differences in compensation among institutions had no effect on retention, but that for assistant and associate professors, higher compensation rates increased retention. The study also suggested that salary differences have a greater effect on mobility *within* higher education than on attrition *from* higher education.

Faculty compensation levels are, of course, only one factor behind job changes. Matier (1990) surveyed 221 faculty members at two research institutions (one urban and one rural) about decisions to stay or leave when job offers were made by other institutions. Six of the top seven reasons for departing were intangible values such as research opportunities, institutional reputation, rapport with colleagues, and departmental loyalty. The tangibles most often identified were better equipment and better salary. The study also found that in a majority of cases a strong internal push, as well as external pull, figured in faculty departures.

Student Enrollments The demand for faculty is inevitably affected by the market it serves. Faculty projections need to take into careful account the factors expected to influence future student enrollments, including demographics, student characteristics, and trends in program offerings and choices.

During the 1980s, higher education planners expected the decline in the number of 18- to 24-year-olds to result in lower enrollments. This did not occur. Although the population aged 18 to 24 decreased more than 10 percent in the 1980s (U.S. Bureau of the Census, 1990b), undergraduate enrollment in colleges and universities increased 17 percent between 1978 and 1988.[1]

As it turned out, the projections failed to account for changes in the *character* of the undergraduate population that offset the expected decline in the "traditional" college-age cohort. In addition, a higher percentage than expected of the traditional groups enrolled in college. These were some of the changes:

- The percentage of 18- and 19-year-olds enrolled in college increased from 36 percent in 1978 to 42 percent in 1988 (U.S. Bureau of the Census, 1990c and 1979).
- The number of first-time freshmen declined 1 percent between 1978 and 1988, but the number of undergraduates increased 17 percent.
- The percentage of undergraduates enrolled part-time increased from 38 percent in 1978 to 41 percent in 1988.
- The number of 18- to 24-year-olds decreased 5.5 percent between 1980 and 1988, whereas the number of students aged 35 and over increased 32.7 percent, and students aged 25 to 34 years increased 3.1 percent (Frances, 1989).
- The number of women enrolled in undergraduate education increased 25 percent between 1978 and 1988, but the number of male students increased only 8 percent.
- Nonwhite/Latino students increased as a percentage of total enrollments. Nineteen percent of the nation's undergraduates were nonwhite/Latino in 1988, compared with 17 percent in 1978.

Data on student choice of major and student enrollment by discipline are also important to projections of faculty demand, but at present the available data are far from sufficient. (Astin, Green, and Korn, 1987; Green, 1989; Bowen and Sosa, 1989).

Factors Affecting Faculty Supply

Projections that faculty supply will be inadequate to meet demand are based primarily on two assumptions. One is that the annual production of new doctorates either will remain constant or will decline. The other is that the percentage of those new Ph.D.'s who seek jobs in academe will decline because of competitive pressures from nonacademic sectors.

In this area, accurate and timely trend data are needed to develop properly planning assumptions. Further, more sophisticated projection models are needed because numerous factors affecting the supply/demand equilibrium can occur simultaneously. Such factors include the number of U.S. citizens and others earning doctorate degrees; the proportion of these interested in faculty careers; the proportion of students enrolling in graduate programs leading to doctorates; expected program changes and developments; and the larger external economic and social forces that may be likely to affect the appeal of nonacademic employment alternatives.

Faculty Supply Studies There are many gaps in the data bases needed to support truly comprehensive studies of future

faculty supply. At present, studies focus on four-year institutions and limit their consideration of the potential faculty applicant pool to new doctoral recipients. Consideration is rarely given to quantitative studies in other areas, such as Ph.D.'s who are not currently employed as faculty; graduate and first-professional-degree students who are not planning on academic careers but who might be attracted into faculty ranks; academic administrators who do not hold regular faculty positions; Ph.D.'s who have retired early from nonacademic jobs; part-time faculty who could transfer to full-time status; foreign scholars; and professionals with master's degrees.

Some studies, although limited in scope, have suggested that if faculty shortages do occur, nontraditional pools of potential faculty might provide a substantial source of supply for higher education (Bowen and Schuster, 1986; Ehrenberg, 1991; Locke, 1989).

Within institutions, salary inequities have intensified because of stronger external competition for professionals in some disciplines compared with others.

Other studies have found that there have been increases in graduate enrollments and degree completions that might lead to new entries into the faculty pipeline. According to a survey of 536 graduate schools by Syverson and Zhao (1990), covering 1,021,919 students, total graduate enrollment increased by 3 percent between 1986 and 1988. Increases were observed in all disciplines and at all types of institutions. The number of degrees awarded also rose in the same period, resulting in a 10 percent increase in master's degrees and a 7 percent increase in the number of doctoral degrees.

The National Research Council (1990) reported that although the number of new doctorates increased between 1970 and 1989, the percentage of those with definite postgraduation commitments who planned to enter the U.S. labor force (including those with postdoctoral appointments) decreased from over 88 percent in 1970 to 83 percent in 1989. At the same time, it seems that postdoctoral appointments may delay entrance into the academic labor market. An increasing number of new doctoral recipients are completing one or more years of postdoctoral study before entering the job market. Data from the National Research Council (1990) show that, overall, 26 percent of doctoral recipients planned to do postdoctoral study.

Some studies suggest an increasing trend in all disciplines for candidates to take longer to complete their degrees (Bowen and Schuster, 1986; National Research Council, 1990). Should this trend continue, or even remain at present levels, the rate at which doctoral degree recipients are produced will slow, at least over the short term, and the recipients will spend fewer years as faculty members before reaching retirement age.

Faculty Recruitment and Retention

Planning for the future of higher education also requires information on how the education sector can effectively recruit and retain quality faculty. As in other economic sectors, salary administration is an important management tool.

Compared with other sectors of the economy, and assuming reasonably parallel job types, there is some evidence that faculty salaries lag in parity with other employments; there is also evidence that faculty salaries have themselves declined in real value compared with the early 1970s (Bowen and Sosa, 1989; El-Khawas, 1990; Carnegie Foundation, 1989). Although this is a significant area requiring more attention and better data, a parallel problem for the 1990s may well be faculty salary inequities within an institution.

There is increasing awareness that the work environment plays an important role in faculty retention.

Within institutions, salary inequities have intensified because of stronger external competition for professionals in some disciplines compared with others. There is also differential competition among disciplines within the higher education sector. These pressures, coupled with limited salary budgets, have resulted in both salary dispersion and salary compression (Hansen, 1988).[2] If faculty compensation structures are to remain competitive, it seems apparent that effective salary administration for the future can benefit considerably from improvements in the extent, accuracy, timeliness, and availability of compensation data (including salary and retirement and insurance benefit programs).

Yet inequities in faculty salaries do not appear to be major factors affecting faculty attrition once tenure is granted (Ehrenberg et al., 1989), although further studies may be needed to confirm such a conclusion. How does this affect the academy? It is likely that salary inequities in the wider work-force marketplace, in combination with other factors, have the greatest impact on the recruitment of new talent (National Science Foundation, 1988). It has been observed that the "opportunity" to earn a substantially lower salary in an academic career after getting a bachelor's degree often requires six or more years of additional study at poverty-level income, followed by a seven-year probationary period with no guarantees of job security. Under these conditions, the economic value of graduate education may appear to be low, and possibly even negative, considering the economic and

professional alternatives, the long preparation time, the forgone income, and the long probationary period (National Science Foundation, 1989).

Finally, there is increasing awareness that the work environment plays an important role in faculty retention, and is therefore prominent among the factors affecting faculty supply. For the compensation package, institutions may face hard budget imperatives. But they may have greater opportunities, as yet unused, to improve the work environment. Environmental factors can affect faculty morale, commitment to the institution, and, consequently, productivity (Austin and Gamson, 1983; Matier, 1990). According to Bowen and Schuster (1986), faculty members place great value on an "intrinsic reward system" and the collegiality associated with the professoriate, and they are willing to accept significant salary inequity because of it.

Projections and Assumptions

We now look at the projections of faculty supply and demand that are conventionally used, and the assumptions involved in their use.

Retirement Projections Most current retirement-rate projections share two important assumptions: (1) an average retirement age of 65 years that is not expected to change, although this is questionable; and (2) economic and social conditions that will not change sufficiently either to delay or to accelerate retirements. Nonetheless, not all studies agree that there will be a bunching of faculty exits by the year 2000.

In their projections of faculty exits, Bowen and Sosa (1989) suggest that the flow of faculty from higher education will be stable during each five-year period from 1987 to 2012. These findings differ from the retirement rates estimated in other studies, which project increases in rates of faculty retirements beginning in the early to mid-1990s (Porter and Czujko, 1986; Buchen, 1987; Connellan, 1987). They also differ from the projections of Lozier and Dooris (1991) and McGuire and Price (1990), who forecast that faculty will retire at a greater rate by 2002-03. Differences in faculty retirement projections are due to differences in population samples and differences in assumptions.

A major concern of those involved in research on faculty supply and demand is the quality of the data collected and maintained by the higher education institutions themselves.

Faculty Demand Projections There is little consensus on the projected number of new faculty that will be needed by 2010. Direct comparisons among projections are impossible because the current status of data collection results in different studies, which focus on different types of faculty, different types of institutions, and project forward to different years.

Student Enrollment Projections When projections of faculty demand are made, they are based in part on assumptions regarding future student enrollments and on teaching faculty student ratios, without much regard to research faculty. Student enrollment projections are usually based on population trends such as state birth patterns, migration rates, high school graduation rates, and institutional enrollment trends. Often, the population projections on which enrollment projections are based are computed at the national level. However, generalizations from national trends are inappropriate for state and institutional planning purposes, because there is wide variation among states and regions in the sizes and characteristics of their populations, as well as in high school graduation and higher education enrollment rates.

Attrition Projections For accurate projections, information is also needed regarding other sources of faculty attrition, previously noted as losses to other employments and in-service mortality, but at present, adequate data are either unavailable or seriously incomplete. For in-service mortality, the conventional assumption currently is that mortality rates are constant and not expected to change.

Conclusion

In general, our studies of data bases, assumptions, and projections relating to future faculty resources raise many questions about the underlying quality of the data and of data collection.

One of the biggest problems higher education researchers, policymakers, and planners face in projecting future needs for faculty is that much of the published data on the *current* size of the faculty population are inconsistent and, in some cases, noncomparable. Unfortunately, it is difficult for planners and policymakers to know which estimate or estimates they should use. Part of the problem is the lack of a consistent definition of faculty; it is compounded because many reports and studies provide no definitions.

A major concern of those involved in research on faculty supply and demand is the quality of the data collected and maintained by the higher education institutions themselves. No universal standards exist for data collection on the number and characteristics of faculties, and few institutions monitor faculty flow data. While some institutions maintain detailed faculty member data (age, sex, discipline, degrees, number of years of service), others are able to provide no more than a count of their faculty population. Moreover, the definitions of faculty, instructional faculty, and other key terms vary widely. These problems make it virtually impossible for researchers to collect consistent data across institutions.

Other problems relating to noncomparability of data arise as well. Data ob-

tained from different surveys are sometimes used to demonstrate or confirm trends, but the data may not be comparable. Different populations may have been surveyed, or apparently similar terms may have been given different definitions. For example, *student enrollment* may be defined as "full-time equivalent students" in one survey, and as "head count" in another. In other situations, data from a survey that samples one set of institutions and programs may be used inappropriately in projections that are made for a different set.

As if these data problems are not serious enough, the policymaker or planner for state systems of higher education or for individual institutions is beset by further difficulties. Most of the available data on faculty are from national data bases and cannot provide accurate projections of events at the state level. Aggregated data can easily mask important variations among types of institutions, regions, or localities.

Moreover, there is an absence of adequate data bases by academic discipline and by areas of concentration within disciplines. This gap makes it even more difficult for planners to ascertain the extent and nature of possible faculty shortages.

There are also problems relating to the use of simplistic assumption models to deal with complex and interrelated factors. An effective "what if?" process cannot be followed without the application of sound data bases to comprehensive assumptions. For example, in projecting numbers of faculty needed relative to students who can be served per faculty member, multivariate approaches are necessary in order to accommodate and test a variety of component mixes, including institutions, programs, educational philosophies, funding sources and levels, and changing student characteristics.

An imbalance in which the demand for faculty exceeds supply could create serious difficulties for the educational community and, indeed, for society as a whole. Consequently, a number of initiatives are recommended below for consideration as possible steps to improve higher education's capacity to project future faculty needs and to make future plans.

Initiatives for Consideration

The following "Initiatives for Consideration," which were reviewed by the Commissioners of the Western Interstate Commission for Higher Education (WICHE), were developed with the assistance of an advisory committee of scholars on faculty issues whose members are listed on page 1. The committee was established with support from TIAA-CREF to advise researchers at the Western Interstate Commission for Higher Education (WICHE) on the study Bringing into Focus the Factors Affecting Faculty Supply and Demand: A Primer for Higher Education and State Policymakers.

Objective

To prepare effectively for a possible faculty shortage, institutions must address issues directly affecting the supply of qualified faculty. These issues include:

- ▲ Expanding the faculty pipeline
- ▲ Compensating and recruiting faculty in a competitive marketplace
- ▲ Increasing the number of minorities and women represented in higher education
- ▲ Adopting more flexible academic personnel policies to address institutional needs
- ▲ Maintaining faculty vitality and productivity

Develop an adequate faculty data base:

1. Institutional administrative data bases should be expanded to capture and maintain biographical data (e.g., age, date of appointment, discipline, etc.) about faculty. Faculty entry and exit interviews should be conducted to gain information on: why the faculty member accepted the appointment; type of previous employment; nature of other job offers; and in the case of a faculty member leaving the institution, reasons for leaving. This information is important to understand faculty attrition (such as retirement or career change) and mobility (e.g., interinstitutional mobility).
2. The federal government, professional organizations, and individual institutions should cooperate to develop a system of standardized terms and definitions that could be used in modeling activity and the analysis of faculty supply and demand.
3. Faculty data collection should be coordinated and of sufficient sample size to yield information of value to all users.

Evaluate faculty compensation and recruitment:

1. Salary equity issues need to be discussed at both the institutional and the state levels. Policy studies are needed to review the costs and benefits associated with "marketplace" recruitment packages, and strategies should be designed to lessen the negative impact of salary inequities on the campus.
2. The impact of interinstitutional raiding within a state's system of public higher education should be reviewed by institutions and statewide higher education offices.
3. Institutions need to develop creative and flexible approaches to nonsalary compensation programs to attract faculty candidates in a competitive market.
4. Higher education leaders must effectively present to the general public and elected officials the value and importance of competitive faculty salaries.

Increase the numbers of women and underrepresented racial/ethnic persons in the faculty ranks:

1. Institutions must develop strategies to increase the participation of minorities in higher education. The faculty pipeline begins long before the first college class. Higher education ad-

ministrators and faculty need to work closely with elementary and secondary school teachers to identify talented individuals and cultivate their development as prospective faculty members.

2. Institutional affirmative action initiatives can include:
   a. Programs for professional development opportunities for minorities who demonstrate potential as quality faculty members, but who do not meet the institutional requirements for a tenure-track appointment;
   b. Programs that encourage minority students with the potential to pursue academic careers by providing financial and academic support at the undergraduate and graduate levels, with the promise of a faculty appointment upon completion of their studies; and
   c. Consortial agreements with other institutions to provide academic support and financial assistance for minority doctoral students or recipients: For example, individuals could receive some of their doctoral education or postdoctoral appointments at one institution and be offered a tenure-track appointment at another institution in the consortium.
3. Assistance to minority undergraduate and graduate students should be made available in the form of grants and should not be conditional upon entering an academic career.
4. The federal government needs to take general responsibility for assuring minority access to higher education. However, states have an additional responsibility for providing higher education opportunities to the members of their diverse populations. Minority access, retention, and completion rates should be monitored by an appropriate state agency.

Provide for flexible academic and personnel policies:

1. Institutions should monitor their ability to respond to student needs and interests in a manner consistent with their mission, and should develop policies that encourage maintaining a stable and qualified faculty that best meets institutional needs. Institutional monitoring requires data on faculty retirement patterns, recruitment patterns, reasons for faculty attrition, use of part-time faculty, and faculty compensation packages. Such data need to be collected, maintained, and analyzed by academic discipline.
2. Part-time faculty are an essential institutional resource. Ensuring a quality pool of part-time faculty and maintaining the maximum commitment and participation from them may require changes in institutional compensation policies and institutional practices, including the participation of part-time faculty in governance and nonteaching activities.
3. Flexible retirement policies are needed to provide incentives for early retirement as well as for delayed retirement.

Provide professional development opportunities for faculty:

1. Academic evaluation systems need to be part of a professional development program and should be sufficiently flexible to accommodate changing patterns and levels of faculty productivity. Posttenure reviews should be structured as part of a faculty professional development program.
2. Policy studies on career-long faculty productivity and effectiveness are needed so that expectations can be realistically defined and evaluated, especially with respect to mid- and late-career faculty.
3. Institutional policies should provide opportunities for early retirement and for career-change training programs. ❑

Endnotes

[1] This includes full-time and part-time students in two- and four-year institutions. Unless otherwise indicated, data are from the National Center for Education Statistics, Integrated Postsecondary Data System (IPEDS). IPEDS replaced the Higher Education General Information Survey in 1986.

[2] Salary *compression* occurs when salaries offered to new faculty are higher or increase more rapidly than does the average salary for experienced faculty. Thus salary differentials among academic ranks within a discipline are reduced, or compressed. Salary *dispersion* occurs when higher salaries are paid to faculty in high-demand disciplines. This results in a wider salary range across disciplines at a given academic rank.

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