Department and program quality rankings could be based on such factors as how well the faculty teach, advise students, and perform service roles. In practice, though, almost all quality rankings measuring achievement in graduate departments have been based on faculty research performance of one kind or another.

Using Faculty Research Performance for Academic Quality Rankings

David S. Webster, Clifton F. Conrad

Academic quality rankings have been based on many different features of colleges, universities, individual departments, and fields of study. They have been based on the accomplishments of students—for example, entering students' scores on objective tests, such as the Scholastic Aptitude Test (SAT) or the Graduate Record Examination (GRE), and the number of prestigious graduate fellowships that seniors win. They have been based on the accomplishments of alumni—for example, the number or proportion of them who eventually are listed in *Who's Who in America* and *American Men and Women of Science.* They have been based on institutional resources, such as faculty/student ratios and library books per student. However, at least since 1965, far more often they have been based on the accomplishments of faculty members than on any other measure.

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In principle, rankings could be made according to such factors as how well the faculty teach, advise students, and perform their various service roles, both within and outside their institutions. In practice, though, almost all quality rankings measuring faculty achievement in graduate departments have been based on research performance of one kind or another.

The question of what academic quality means is often raised but has never been satisfactorily answered. Nevertheless, several elements seem present in a quality program, including quality faculty; facilities, such as well-equipped laboratories, for the success of the program; adequate resources to maintain the operation, provide for faculty travel, and attract and retain outstanding faculty; a curriculum with variety and depth of courses; and an adequate number and mix of students, to enable students to learn from one another and maintain individualized learning (Conrad and Blackburn, 1985). The meaning of "academic quality" can also be distilled from less quantifiable attributes such as "morale" and "clarity of purpose"; and be distinguished from related concepts of "accountability," "efficiency," "effectiveness," and "excellence" (see Conrad and Blackburn, 1985).

This chapter considers studies that ranked sociology departments on the basis of their faculties' research performance. These studies employed two broad types of method. The first type is *subjective;* it is based on raters' opinions of the scholarly achievements and competence of their peers. During the last twenty years, three major, multidisciplinary rankings have used this method. They are Cartter's *An Assessment of Quality in Graduate Education* (1966), Roose and Andersen's *A Rating of Graduate Programs* (1970), and Jones and others' *An Assessment of Research-Doctorate Programs in the United States* (1982), published by the National Academy of Sciences (NAS). This discussion addresses the three rankings because they are perhaps the best ones methodologically, as well as the best-known subjective rankings ever done. The second broad type of method uses various *objective* measures to rank departments according to their faculties' research performance.

The measures discussed have been used to rank sociology departments; in fact, all were employed in articles published in a single journal, *The American Sociologist (TAS)* from 1965 to 1975. Several reasons exist for choosing rankings from a single discipline, sociology, rather than from several disciplines:

1. More rankings based on faculty research performance have been published for sociology than for any other discipline (only psychology and ecnomics come close).
2. Rankings of sociology departments based on research performance have employed a greater variety of methodologies than have those for any other discipline.
3. Sociology rankings contain much useful debate about the virtues

and faults of various objective measures of faculty research performance, more than do the rankings in any other discipline, with the possible exception of psychology.

In light of these reasons, this chapter examines articles appearing in *TAS* from its inception in 1965 until 1975, when it stopped publishing rankings entirely. *TAS* published far more studies ranking sociology departments by their faculties' research performance than did all other major sociology journals put together.

This chapter will present, first, two subjective rankings of faculty research performance, Cartter (1966) and Roose and Anderson (1970). Second, it will examine a study that uses both subjective and objective measures; the National Academy of Science ranking scheme. Third, discussion in this chapter will turn to objective measures and address ten different measures of faculty (and, in one case, student) research performance in sociology. Fourth, this chapter will consider the faults of objective measures, taken as a group. Fifth, it will explore the correlation between subjective and objective rankings. This chapter will conclude with a discussion of the implications of the studies for institutional research.

Subjective Measures of Faculty Research Performance

The Cartter report (1966), commissioned by the American Council on Education (ACE), surveyed department chairpersons, distinguished senior scholars, and knowledgeable junior scholars in twenty-nine disciplines at 106 Ph.D.-granting institutions. All were asked to "consider only the scholarly competence and achievements" (p. 127) of faculty members, not their performance in teaching, advising, service, or anything else. Cartter ranked Ph.D.-granting departments on a 5.00 scale, as follows: Those with overall ratings of 4.01 to 5.00 he listed in order of their scores and labeled "distinguished"; those from 3.01 to 4.00 he listed in order of their scores and called "strong"; those from 2.51 to 3.00 he listed alphabetically as "good"; and those from 2.00 to 2.50 he listed alphabetically as "adequate plus."

Roose and Andersen's (1970) assessment, also sponsored by ACE, was a near replication of Cartter's study, except that it included more raters, disciplines, and institutions. Another difference was that while Cartter had emphasized the ostensible quality of departments in each discipline by calling groups of them, at various cutoff points, "distinguished," "strong," and so on, Roose and Andersen listed all schools rated 3.00 or higher in descending numerical order, then all schools listed from 2.50 to 2.99 and from 2.00 to 2.49 in separate alphabetical order, without labeling any of these groups.

The Cartter report and the Roose and Andersen study provoked an enormous amount of coverage in the daily press, a large number of reviews in academic journals and popular magazines, and a substantial amount of

scholarly analysis. Tyler (1972), discussing rankings of psychology departments, argued that because Roose and Andersen had sampled only psychologists on university faculties, and not those working in nonacademic settings, their findings were not valid. Dolan (1976) wrote a slim, book-length *cri de coeur* excoriating both the Cartter and Roose and Andersen rankings for being unscientific, discouraging educational innovation, harming undergraduate education, and being political and structured to ensure that the departments currently at the top of the academic pecking order would stay on top. Discussions of the virtues and faults of subjective rankings based on faculty publication performance that consider (in addition to the Cartter and Roose and Andersen studies) other peer rankings include the following: Rhode and Zeff (1970); Smith and Fiedler (1971); Blackburn and Lingenfelter (1973); Wong (1977); Lawrence and Green (1980); Webster (1981); Astin (1985); and Conrad and Blackburn (1985).

A Ranking Combining Subjective and Objective Measures of Faculty Research Performance

The National Academy of Sciences (NAS) 1982 ranking included 2,699 programs in thirty-two disciplines at 228 Ph.D.-granting universities. Two of its four subjective measures were very similar to those of the Cartter and Roose and Andersen studies: one, for example, asked faculty members for their opinions of the "scholarly quality" of their peers in other programs in the discipline. The number of objective measures it employed varied by discipline; for sociology, it used twelve, of which four involved faculty research and publication productivity. These were as follows:

1. Fraction of faculty members recently holding research grants from three major federal granting agencies.
2. Total recent expenditures reported by the university for research and development in that discipline.
3. Total number of articles published recently by a program's faculty.
4. Fraction of program faculty who had recently published at least one article.

The NAS ranking, unlike almost all other recent quality rankings, rated the great majority of programs in each discipline, not just the top two or three dozen. In sociology, for example, the departments rated had conferred 93 percent of all recent doctorates. Possibly in an effort to shield low-ranking departments from public scorn, NAS displayed its findings in a very confusing format; its five volumes are very hard to understand. For this reason, perhaps, neither the scholarly nor the popular press have given its findings nearly as much coverage as the Cartter report and the Roose and Andersen study received.

Webster (1983) tried to explain the NAS format, discussed some of its most important findings, and compared one of its subjective rankings

with the results of earlier multidisciplinary ratings. Welch and Hibbing (1984) compared its subjective rankings in political science with three earlier objective rankings based on the publication performance of political science faculty and Ph.D. recipients. Lewis (1984) criticized NAS for having presented a great number of statistics without having made much effort to interpret them: "This rummage . . . seems determined to avoid assessment of any sort, and instead offers a compilation of mostly useless statistics—an exercise of money in search of brains" (p. 125).

Objective Measures Used in Ranking Sociology Departments, 1965-1975

Several studies reported in *The American Sociologist (TAS)*, 1965–1975, used objective measures in assessing faculty research performance of sociologists in Ph.D.-granting departments. These measures are of three types: unweighted measures, assessed by counting the number of journal articles, books, research reports, published notes, and extended commentaries; weighted measures, in which researchers or survey respondents weighed forms of faculty research according to a predetermined scheme and then counted the number of articles, books, and so forth; and other measures, such as citation counts, attendance at research meetings, and research funds received.

Unweighted Measures. Wanderer (1966) counted the number of articles, research reports, and notes published in the *American Sociological Review (ASR)* from 1955 to 1965. He chose *ASR* as his source because it was "the major journal published by the American Sociological Association" (p. 241). After excluding authors with no higher degrees, those for whom the institutions granting the higher degrees could not be identified, students, and nonsociologists, for the remaining authors—77 percent of the original number—he determined the institutions from which they had received their highest degrees. He then ranked sociology departments by how many *ASR* authors they had "contributed."

Lewis (1968) used a method nearly identical to Wanderer's, except that he included extended commentaries (but not letters to the editor) and based his calculations on the years 1956–1965. He also based his ranking of sociology departments on how many *ASR* contributors were currently faculty members at those institutions (rather than, as Wanderer had done, on how many had earned their highest degrees there).

Doering (1972) used a roster of the twenty-six top-rated sociology departments. After obtaining the names of all full-time faculty in the twenty-six departments, he looked up their names in the author index of the current *Books in Print.* He gave faculty members one point for each book listed that they had authored or edited and half a point for each book coauthored or coedited. He then ranked sociology departments by the points faculty had earned.

Weighted Measures. Knudsen and Vaughan (1969) ranked sociology departments by calculating faculty's publications in *ASR*, the *American Journal of Sociology (AJS)*, and *Social Forces (SF)*. Their procedures were as follows:

> All articles in these three journals, plus the research notes and book reviews in the *American Sociological Review*, were included for . . . 1960 through 1964 . . . it was assumed that two research notes in the *ASR* or two articles in *Social Forces* were the equivalent of one substantive article in the *ASR*. An article in the *AJS* was assigned two-thirds the value of an *ASR* article. For books, a theoretical or research monograph reviewed in the *ASR* was counted as the equivalent of three *ASR* articles, a textbook as one and one-half articles, and an edited collection as the equivalent of one article in the *ASR* [p. 15].

Glenn and Villemez (1970) devised an extremely complex system by which to measure faculty publication productivity, calling it the Glenn-Villemez Comprehensive Index (GVCI). Using the opinions of sociologists whom they surveyed to determine various journals' "importance to the discipline," they assigned weights to twenty-two sociological journals. Then they counted all articles and research notes published in those journals from 1965 to 1968 and multiplied each once by the journal's weighted score.

The books included in the GVCI were all those reviewed in *ASR*, 1965-1968. Glenn and Villemez weighted research and theoretical monographs at thirty, textbooks at fifteen, and edited books at ten. They then multiplied each book by a quality factor they had obtained by rating the quality of journal in which the average member of the author's department published. Thus, if a sociologist was in a department whose faculty, on the average, published in high-scoring journals (out of the original twenty-two), his or her textbook or whatever would receive a higher score than that of another sociologist whose departmental colleagues published in lower-scoring journals. On the basis of this complicated system, they ranked departments. (For a thorough description of the GVCI, see Glenn and Villemez, 1970.) Sturgis and Clemente (1973) used the GVCI, making one minor change. Instead of counting only books that *ASR* had actually reviewed, they counted all the books that it received.

Larson and others (1972) asked the chairs of twenty top-rated sociology departments which journals or periodicals they would prefer their faculty to publish in. From the chairs' responses, they compiled a list of twelve journals, which they weighted according to how many chairs had mentioned them and to how high the chairs had listed them. They then examined all issues of these journals published from 1959 to 1968 and,

after multiplying each article by the assigned weight of the journal in which it appeared, ranked departments by the journal-article publication productivity of their alumni.

Other Measures. Oromaner (1972) counted the citations appearing in full-length articles in *ASR* during 1970 and in *SF* during 1969-1970. He gave an author credit every time an article was cited (allowing only one credit if it was cited several times in the same article) and ranked departments by the number of faculty's citations.

Leonard and Schmitt (1974) determined the current institutional affiliations of all those whose names appeared on the final program of the American Sociological Association (ASA) meetings, 1970-1972. They counted all sessions, including "regular sessions, seminar papers, contributed papers, luncheon roundtable discussions, [and] didactic sessions" (p. 40). They also counted not only people who presented papers but also "chairpersons, moderators, panelists, and discussants" (p. 40), without weighting the different types of sessions or participation. The authors gave a department credit for each time a faculty member had participated. Leonard and Schmitt did not publish the ranking they obtained, because they had already published it elsewhere (Leonard and Schmitt, 1973). They did, however, discuss the correlations between their ranking and those of several other objective rankings of faculty research performance, including the GVCI (+.59) and Larson and others (+.51).

Pfeffer and others (1974) ranked sociology departments according to the proportion of research grant money faculty had received (and also the proportion of dissertation grant money their doctoral students had received) from the National Science Foundation's Social Psychology and Sociology division, 1964-1971.

Shortcomings of Objective Measures

Most of the articles reviewed here discussed the advantages of the objective measures that were employed for assessing faculty research performance. Since the articles can be consulted for descriptions of the strengths of these measures, in this brief critique we consider only shortcomings, concentrating on the faults of the measures as a group.

One shortcoming is that the measures fail to cast a wide enough net to include all the forms of research that sociologists (and faculty in other disciplines) produce. Some of them are very limited, considering only articles (and some other materials) appearing in one journal (for example, Wanderer, 1966). Others consider only books (Doering, 1972), only activities at ASA meetings (Leonard and Schmitt, 1974), or only grants received from one source (Pfeffer and others, 1974). Even the measure that covers the widest range of materials—the GVCI, as expanded by Sturgis and Clemente (1973)—still includes only books reviewed in *ASR*

and articles published in twenty-two scholarly journals. It does not cover such sociological research as books and monographs not received by *ASR;* articles published in scholarly journals other than those twenty-two; chapters in books; book reviews and essays; articles in intellectual journals, such as *Public Policy, American Scholar,* and *Commentary;* and conference activities.

Moreover, when these studies count publications or citations, they tend to concentrate too much on the mainstream, "core" journals of the discipline, such as *ASR, AJS,* and *SF,* slighting those departments whose sociologists publish frequently in other journals. Shamblin (1970) has argued that "even a cursory glance at other [than the leading] journals with different orientations and different groups of editors, for example, *Social Problems, Transaction, The Annals,* and so on, reveals convincingly that the leading mainstream sociology departments would not score well therein" (p. 155).

Others have made the same point. Knudsen and Vaughan (1969) pointed out that some sociology departments, such as those at Cornell and Princeton, emphasize book rather than article publication. Some departments have out-of-the-mainstream strengths, such as Princeton in demography and the University of California at Davis in qualitative sociology. Some departments may have several area specialists; others may have sociologists who publish regularly in the journals of other disciplines, such as psychology or political science. All these departments may suffer in computations of articles published in mainstream sociological journals.

As a group, the objective measures are probably better at capturing the quantity than the quality of sociological research. For example, Doering (1972) in assigning one point to all books a sociologist had written or edited that were listed in *Books in Print,* tacitly assumed that these books were of equal merit. Lewis (1973), criticizing Doering's method, argued that "it does not discriminate between types of books—monographs, trade books, good and bad college textbooks, the thousands of readers that afflict sociology students and faculty alike, high school textbooks, and so on" (p. 47).

Economists, even more than sociologists, have often been more skillful at measuring publication quantity than quality. The authors of two studies of publication productivity in that field—Niemi (1975) and Graves and others (1982)—were concerned with measuring precisely the quantity of journal publications; thus, they counted not articles published, but rather number of pages published, after standardizing page lengths so that the pages of all the journals they considered were adjusted to contain equal numbers of words. However, they made no effort to weight in any way the quality of the economics journals they used.

Another problem is that objective rankings lack a satisfactory method or even a generally agreed upon method, whether satisfactory or not, for weighting articles and books. Studies that have weighted journal

articles at all have weighted them by the prestige of the journals in which they appeared. This measure, however, is crude, since it assumes that all articles published in a journal are of equal quality or significance to the discipline.

Studies that have included both articles and books differ greatly in the relative weights they assign to each. The complicated weighting ratios devised by Knudsen and Vaughn (1969) and by Glenn and Villemez (1970) to equate books and articles are difficult to summarize, since both methods assign different weights to different journals. Glenn and Villemez's method even assigned different weights to different books.

Many studies, however, have used easier-to-summarize ways of equating articles with books. At one extreme, Manis (1951), studying five social science disciplines, including sociology, weighted a book eighteen times as heavily as an article, reasoning that each chapter was equivalent to one article and the average book in the social sciences contained eighteen chapters. Cartter (1966), discussing political science, considered a book to be worth six articles in one of five leading political science journals; Straus and Radel (1969) weighted a book six times as heavily as an article in *ASR* or *AJS;* Stallings and Singhal (1970) weighted a book five times as much as an article; Crane (1965), studying political science, psychology, and biology, weighted a book four times as heavily as an article. Lightfield (1971) weighted an article as equal to one hundred pages of a book; if the average sociology book contains around three hundred pages, he therefore weighted books about three times as heavily as articles.

To put it mildly, there is nothing approaching consensus on how objective rankings of faculty research performance should be made. One researcher has argued that the use of many different measures leads to "diverse and misleading conclusions" and has worked to "stultify empirical generalization of the productivity of sociologists" (Clemente, 1972, p. 8). Clemente urged that future research on the publication performance of sociologists should use either the GVCI or a similar measure, so that findings would reflect real differences in productivity, not mere disparity in methods.

Finally, so-called objective measures of faculty research performance assume that books, articles, and the like are published solely because of their merit, without the decision to publish being influenced by nonmeritocratic factors. However, there is evidence that such factors as "old boys' networks" and "old school ties" may sometimes influence where articles are published.

For example, as Shamblin (1970) has pointed out, according to the Knudsen and Vaughan (1969) ranking, the sociology faculty at the University of North Carolina, which edits *Social Forces,* ranked sixth in articles published in that journal, while it ranked lower in journal articles published in *AJS* (twelfth) and ranked fifteenth in articles and notes published

in *ASR*. Similarly, the University of Chicago sociology department ranked first by far in articles published in *AJS*, which is edited at Chicago, with 25 percent more articles and notes in *ASR* and tied for thirty-second in articles in *SF*.

Comparison of Subjective and Objective Rankings

At least since the publication of the Cartter (1966) report, the question of how well subjective measures of faculty reputation for scholarly achievement correlate with various objective measures, including those of faculty research performance, has been widely debated. One scholar has even written that the question of whether objective ratings of research productivity are equivalent to subjective ratings is "the most fundamental issue in the development of department ratings" (Abbott, 1972, p. 14). The conclusions of investigators who have examined the matter in *TAS*, 1965–1975, using as data some of the *TAS* studies mentioned earlier, are discussed further here.

Lewis (1968) compared Wanderer's (1966) data on the academic origins of *ASR* contributors (and also some other data for objective measures *not* related to faculty research performance) with Cartter's (1966) subjective rankings. He concluded that "there seems to be a correspondence between subjective and objective rankings of sociology departments" (p. 13). Larson and others (1972) studied the relationship between a sociology department's rating in the Roose and Andersen subjective ranking and the publication productivity, in twelve sociology journals, of its alumni who taught at Ph.D.-granting departments of sociology. They found correlations of .73 and .70 between two different measures of publication productivity of alumni of these departments and the departments' Roose and Andersen ratings.

Knudsen and Vaughan (1969), after comparing the rankings based on index of publication productivity with Cartter's (1966) subjective rankings, found significant agreement only between the top four or five departments. Below this group, they found "considerable discrepancy," except, perhaps, for the very bottom departments. Sturgis and Clemente (1973) calculated the zero-order correlations between the publication productivity of the graduates of fifty sociology departments, 1940–1970, and these departments' rankings in the subjective ACE rankings. The graduates' overall publication productivity correlated .65 with the Cartter (1966) report and .58 with the Roose and Andersen (1970) study; Sturgis and Clemente concluded that their publication productivity rankings and the two subjective rankings "do not correspond very well." Finally, Solomon and Walters (1975) used the Simon-Blalock mode of causal analysis on the two ACE subjective rankings and also on three objective rankings of publication performance. These included one done by Knudsen and Vaughan and two

done by Glenn and Villemez—the GVCI, and one in which they applied the Knudsen-Vaughan method to a period later than that covered by Knudsen and Vaughan. Solomon and Walters (1975) concluded that "'current' prestige of graduate sociology departments is essentially a function of prior prestige, rather than of staff productivity, the relationships previously found between prestige and productivity being essentially spurious" (p. 235). Solomon thus reversed his earlier (1972) position that there is a "close correspondence" between subjective and objective rankings.

In short, the results of studies on the relationships between subjective rankings of faculty scholarly achievement and rankings based on objective measures of faculty research performance are inconclusive. Much evidence exists, though, that there is a strong correlation between subjective rankings of faculty scholarly achievement and the sheer size of a department, as measured by its number of faculty members, recent graduates, and current doctoral students. Astin (1985), for example, has shown that in the NAS subjective ranking of faculty reputation for "scholarly quality," "for the thirty-two different departments rated . . . the median correlation between the mean quality rating and the number of doctorates awarded by the department during the preceding five years was .82" (p. 28).

Implications for Institutional Research

Those conducting institutional research should be aware of several implications of department and program quality rankings. Several positive comments can be made about the reputational rankings of graduate departments and academic programs, whether these rankings are based on subjective, objective, or some combination of measures. First, the major criterion chosen by researchers conducting national reputational studies has been the scholarly achievements of faculty, used to document the scholarly and research performance of entire departments and programs. Second, the rankings may be valid, because individuals rating departments and programs supposedly know about academic quality in their disicplines, and their results most nearly match what the educated general public considered the leading colleges and universities to be (Webster, 1981; Conrad and Blackburn, 1985). Third, a review of the studies documents a wide array of measures used to assess the objective quality of graduate program research, information that may be useful for evaluating and assessing graduate programs. Fourth, the mixed results of the research correlating subjective with objective measures suggests that the two approaches to assessing the reputations of graduate programs cannot be used interchangeably by institutional personnel.

Several shortcomings of the studies should also be noted. First, institutional personnel should not regard departmental rankings of faculty research performance—whether based on subjective measures, objective

measures, or both—as reflecting these departments' overall academic quality. The relationship, if any, between a highly esteemed department—with high-quality faculty scholarship and publications—on the one hand, and an educationally effective department, on the other, is far from clear.

Second, the rankings discussed here, as well as the great majority of rankings of all arts and sciences disciplines, rate Ph.D.-granting departments. Assuming, for the sake of argument, that one could generalize from a department's research reputation and productivity to the overall academic quality of a department's doctoral-level education, such a generalization certainly could not be made for its master's and baccalaureate-level programs in most cases.

Third, the objective rankings based on faculty research performance tend as a group to consider relatively "important" forms of publication, such as books, articles in well-known journals, and the like. While this approach may be appropriate for ranking research university departments whose faculty members often publish books and articles in well-known journals, it is probably not nearly so appropriate for ranking other departments. For example, if faculty members in one department published no books or articles in well-known journals but did publish book reviews, magazine and newspaper articles, op-ed pieces, and the like, while faculty in another department produced no research whatsoever, the two departments would probably be erroneously assessed, by most objective measures, as having the same (nonexistent) publication performance.

Fourth, the publication totals in the studies reviewed here measuring departmental research performance are aggregate figures. They seldom reveal what proportion or level of a department's faculty has done the publishing. A department with twenty-five full-time faculty members, each publishing two articles per year, for a total of fifty articles, may be quite different, so far as the kind of education a student might receive there, from one the same size where twelve faculty members publish, among themselves, forty-five articles per year and the other thirteen publish, among themselves, five articles. Similarly, a department whose senior faculty publish relatively little and whose junior faculty, perhaps hired under different market conditions, publish a great deal, may be quite different educationally from one in which faculty of all ranks publish regularly, even though these departments' total publication rates are the same. Those doing institutional research should be prepared, therefore, to disaggregate totals of a department's research productivity to gain a precise indicator of faculty research.

Finally, those conducting institutional research may sometimes be called upon to take the results of academic quality rankings—especially the major, multidisciplinary ones—and aggregate the department-by-department scores to get institutionwide score. However, adding departmental scores to get institutionwide scores is a tricky business. Perhaps for this reason, only one of the compilers of such rankings (Keniston, 1959)

ever published institutionwide scores. Institutional researchers asked to combine departmental rankings into adequate institutionwide rankings face numerous tough methodological decisions and should proceed very carefully (Webster, 1985).

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