The NRC Assessment of Doctoral Programs

Where We Are

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Timetable

- August—Release of Methodology Guide
- September/Early October—Release of Report and Database
  - Participants will see data for their programs no more than 36 hours before public release
- Spring 2009—Conference on Uses and Analyses of the Data

Explaining the Methodology of the Ratings

What the study is trying to accomplish

- **To provide data that will permit doctoral programs to compare themselves to other similar programs and, where possible, provide data that can be used to improve their current practices.**
- **It will also provide accessible data about program characteristics that will be of interest to students considering doctoral study.**

Ranges of Ratings

Based on Faculty Values which were Elicited in Two Ways

1. Directly: Through asking faculty to choose the most important program characteristics from a list of 20. (Question G on the Faculty Questionnaire)

2. Statistically: Through asking a sample of faculty to rate a sample of programs in their field and then relating those ratings to the 20 characteristics.

Variables

- Publications per Allocated Faculty*, 2001-2006 (going back to 1986 for faculty in humanitie fields)
- Average Citations per Publication (citations in 2001-2006 to articles dating back to 1981—for all fields except the humanities)
- Number of Grants per Allocated Faculty*
- Percent Interdisciplinary (% Associated Faculty)
- Percent Non-Asian Minority Faculty for Core or New Faculty**, 2006
- Percent Female Faculty for Core or New Faculty, 2006**
- Awards per Allocated Faculty*
- Average GRE, 2004-2006 (Verbal measure for the humanities, Quantitative measure for all other fields)
- Percent students receiving full support in the first year, (fall, 2006)
- Percent first year students with external funding, 2006

*Faculty members who served in more than one program were allocated to those programs based on whether they were core in the program and the share of that program of total dissertations supervised.

Variables (2)

- Percent Non-Asian Minority Students, 2006
- Percent Female Students, 2006
- Percent International Students, 2006
- Average annual PhDs graduated 2002 to 2006
- Average completions (8 year completion percentage for humanities fields, 6 years for other fields)
- Time to Degree (for Full and Part Time graduates)
- Percent PhDs with definite plans for an academic position, 2001-2005 (including postdoctoral fellowships),
- Student Work Space [1=100% of students w/ workspace, -1if <100%students w/ workspace]
- Health Insurance [1= provides health insurance, -1=does not provide health insurance]
- Student Activities (number offered from a list of 18)

**"Core" Faculty are those whose primary appointment is in the doctoral program. "New" faculty are faculty with tenure track appointments who were appointed in the past 3 years

Ranges of Ratings (2)

Both Direct and Statistical approaches result in weights that can be applied to the data supplied by your programs and to data that the NRC and NSF collected from your students and faculty.

Ranges of Ratings (3)
Sources of Uncertainty

- Statistical
  - Any weight (coefficient) has variability (a standard error) associated with it
- Measurement of the variables
  - Most variables are subject to year-to-year variation
- Choice of the raters
  - A different group of raters might have produced different ratings

Ranges of Ratings (4)
Addressing Uncertainty

- Obtained 50 sets of weights by running 50 regressions, randomly choosing half of raters each time and varying the data values within a range determined by which data element it is.
- We then combine the direct and statistically-obtained weights, arrange the results (ratings) with each set of combined weights in rank order and take the second and third quartiles of these ratings. This gives us a RANGE OF RATINGS for each program.

Reporting Ranges of Ratings for a Field

- Programs will be arranged alphabetically and the range of ratings will be given for each.
- Ranges overlap for most programs. This means that there may be a number of programs of roughly the same quality.
- You should identify those similar programs in discussing the quality of your programs

What information will I receive about the rating calculation for my programs?

1) A list of the values of variables that your program supplied to the NRC or that was calculated from those variables.
2) The normalized values for those variables
3) The median combined coefficient (statistical + direct) for each variable and its standard deviation
4) The range of the normalized variable values
5) The range of the combined effects of the coefficients in the random halves calculation

How do I explain what the NRC did?

1. Identify the largest coefficients. The data these were applied to had the greatest effect on the range of ratings for your programs.
2. Compare your variable values with programs in other institutions. These will be available in an online database.

How do I use the NRC data?

1. Look at the data. Where do my programs fall in the range taken across the programs?
2. Where is improvement indicated? Even if the ratings are mostly determined by per capita publications, grants, citations per publication, or program size what about the variables that reflect effectiveness in educating students?

Supplemental Ratings

Will use the Direct weights re-scaled so that, for each measure, they add to 100%.

Supplemental Ratings

Research Impact

- **Publications/faculty member,**
- **Citations/publications,**
- **Honors and awards per faculty member,**
- **Grants per faculty member**

Student Support andOutcomes

- **Percent of students having full support,**
- **Percent of students with TAs,**
- **Percent of students with RAs,**
- **Time to degree,**
- **Percent who complete in 6 years (sciences) or 8 years (humanities),**
- **Percent planning on an academic position or postdoc after graduation,**
- **Whether the program collects outcomes data for graduates.**

Supplemental Ratings (2)

Diversity of the Academic Environment

- Percent of students and of faculty who are female or from underrepresented minorities (4 variables),
- Percent of students who are international

The NRC will be here to help

- We are training existing staff and hiring new staff who will be available to answer questions and guide you through the database and the range of ratings calculation.
- There will be a Symposium on Analytic Uses of the NRC Data next spring. We hope you will both learn and share your ideas.