

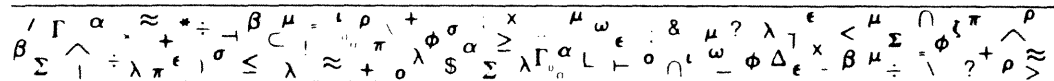
The Ombudsman: Academic Research in MS/OR: Science or Trivial Pursuit?

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The Ombudsman column was created with the belief that academic journals ignore many important problems. Halse and Lilien, in the following paper, approach this issue by looking at the reward systems in universities: do they encourage or discourage competent work on important problems?

It is easy to do trivial work on important problems . . . but it is difficult to publish it. Far more profitable for the aspiring academic is to do rigorous work on trivial problems. This is easy to do and easy to publish. But how can universities encourage competent work on important problems? That is not easy to do nor to publish.

I hope that the Halse and Lilien paper will encourage further research on the topic. The Ombudsman column will provide space for contributions on ways to improve academic research. Questions such as "Do people with tenure feel free to publish their ideas and findings?" and "Does a goal to produce x publications per year in prestigious journals improve the quality of the research at a university?" are worth investigating.

J. Scott Armstrong

At the bottom of the masthead of this journal, in tiny print, a statement reveals that "*Interfaces* seeks to improve communication between managers and professionals in MS/OR . . ." The editor of this journal is at the junction of the academic and practitioner communities, where representatives of both communities frequently express concern about

what academics work on and how that work is evaluated. The types of concerns young academics have expressed follow:

- To get tenure at my school I need eight hits [publications] in six years . . . and I can only get them by working on small problems.
- The really important problems in my field are too long-term and too risky

for someone in my position [without tenure] to work on.

— If I work on a big problem, I will have to be part of a research team and may not get credit [recognition? points toward tenure?] for my work.

Our objective here is to explore the question: Do the rewards and incentive systems at our colleges and universities encourage academics in MS/OR to do research on important problems? To address this question, we recognize that research incentives and academic quality are inextricably intertwined with the tenure decision at most schools. It is therefore useful to review the evolution of and the historical reasons for granting tenure.

In order to understand the existence and extent of the gap between research incentives and performance (the “incentive gap”), we wrote to more than a hundred deans, department heads, and well-known academics. We discuss the responses to those letters here as well. Finally, we draw some preliminary observations about the nature of the “incentive gap” and suggest some directions for further inquiry.

Tenure: A Historical Perspective

In 1940, The American Association of University Professors (AAUP) formulated its “basic statements” on academic freedom and tenure: “Tenure is a means to certain ends; specifically: (1) Freedom of teaching and research . . . and (2) [enough] economic security to make the profession attractive to men and women of ability” [Joughin 1967, pp. 34–35].

The roots of tenure lie in the development of the early universities of Europe, where intellectual freedom was an issue

for those who tried to study theology. However, the Dunster case was the first time that intellectual freedom — the basis of the 1940 AAUP statement — became an issue in the United States. Henry Dunster, president of Harvard in the 1600s, was the first to lose his job in a squabble with the administration [Joughin 1967].

The issue in the Dunster case was not research but heresy — he “refused to present for baptism his fourth child” [Hofstadter and Metzger 1955, p. 87]. The Dunster case shows that a professor’s actions outside the university could have impact on his position in the university and that some governing board had power over a professor.

The Dunster case is only one of many in which the religion of the academic was used as a criterion for acceptance into university community. So powerful was the church in 16th and 17th century America (or so weak the idea of academic freedom) that a new policy arose: *restriction by recruitment*, a policy aimed at assuring that incoming presidents, professors, and tutors “accepted the requisite theological doctrines.”

In sum, the 19th century American university scholar’s position was tenuous. He might hold office “indefinitely on good behavior, [but] his tenure depended upon usage and had no legal status; he could be fired at will by the governing board [Hofstadter and Metzger 1955, p. 230].

But at about the same time in Europe research began to be recognized as an important part of university life. Research — German style — became synonymous with the pursuit of truth; it “breathed

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into the university . . . it attracted men of outstanding abilities . . . it gave students a genuine concern for matters of the mind" [Hofstadter and Metzger 1955, p. 369]. Research, in other words, began to be a measure of the worth of the university and of its teachers.

Because doing research became equated with discovering the truth, 19th century German universities encouraged freedom of research and discussion through a concept called *Lehrfreiheit*: "the university professor was free to examine bodies of evidence and to report his findings in lecture or published form — he enjoyed freedom of teaching, freedom of inquiry, and freedom of expression" [Hofstadter and Metzger, 1955, p. 387]. In America, the idea of freedom of expression was challenged in the 1900 case of Stanford professor Edward A. Ross.

Ross was a "new" economist who challenged the laissez-faire orthodoxy of his elders. He championed several causes, including public scrutiny of the Southern Pacific Railroad. That did not sit well with Jane Lathrop Stanford, the widow of the California rail baron. Mrs. Stanford demanded Ross's dismissal. And Ross, under pressure from Stanford president David Starr Jordan, did resign. He also refused to take the dismissal lying down and so turned to the press.

Journalists, those who supported the populist movement, joined the fight on Ross's side by citing the attempt to dominate the liberal class. More importantly, "to the community of social scientists, recently organized by specialty, an ideological dismissal was triply evil: it injured a disciplinary colleague; it announced that

the specialty was a branch of lay morality rather than a full-fledged science; it cast doubt on the honesty and independence of those who gave the trustees no offense" [Metzger 1973, p. 139].

Perhaps the most important thing to come out of the case is that the serious shortcomings of the early 1900s "tenure system" were exposed: professors were not free to espouse ideas if those ideas disagreed with the administration's; and the administration could effectively remove any professor who challenged their views. The administration felt it could set standards of academic behavior. Indeed, Willard C. Fisher, professor of economics at Wesleyan University, resigned his post in 1913, shortly after a speech in which he "urged less rigid observance of the Sabbath and the subordination of church-going to good works" [Metzger 1973, p. 146].

Similarly in 1915, ". . . without formal charges or a proper hearing, in violation of normal university practice and ignoring the recommendations of the faculty, the trustees [of the Wharton School, University of Pennsylvania] fired Scott Nearing" [Sass 1982, p. 121]. Although the trustees never fully explained the reasons for dismissing Nearing, it was at least partly due to his outspoken opposition to child labor and espousal of liberal causes.

Two needs, then, led to the first American statement of a professor's rights: the need for some system of immunity for professors in their professional endeavors, and the need for a statement about "the problem of professional ethics in the public forum" [Metzger 1973, p. 146]. The statement was the *1915 Report of the Com-*

mittee on Academic Freedom and Tenure of the American Association of University Professors.

The 1915 report outlined three requirements: "the needs for academic research, adequate instruction, and the development of experts for public service" [Metzger 1973, p. 408]. It further stated that, "more and more the modern university is becoming . . . the home of scientific research. [And] . . . the chief condition of progress is complete and unlimited freedom to pursue inquiry and publish its results. Such freedom is the breath in the nostrils of scientific activity" [p. 408].

While the 1915 report clarified the position of the professor in relation to his own research and teaching, it was not until the 1940 statement that the modern guidelines for tenure were drawn. The 1940 statement (quoted above) clarified the roles of the professor, as a citizen, a teacher, and someone who "is entitled to full freedom in research and in the publication of results . . ." [p. 488]. The 1940 statement also stated the usual term for probation before permanent tenure or dismissal (seven years). But the chief aspect of both documents is that they equate tenure with academic freedom.

During the first half of the 20th century, the methods and criteria for granting permanent tenure gradually changed. Initially, tenure was a precondition of academic employment. By the time of the 1940 AAUP statement, tenure had become a right granted only after a seven-year probationary period. As practiced today, the major qualification for granting or not granting tenure to probationary faculty at many universities seems to be research output. The major concern and

disagreement about the tenure, academic reward, and incentive systems seems to be how they relate to the "quality" of search output.

The Survey: Does Tenure Provide Incentives for Research Quality?

Tenure, today, is granted at most universities after a faculty member demonstrates the ability and desire to do quality work. But what is the measure of that good work? Is it

- High volume of research output (lot of papers)?
- High impact of research output (one seminal paper)?
- High-quality teaching (students like the professor; students hate the professor but learn a lot)?
- Service to the university and the profession (chairing committees, refereeing papers, editing journals)?

And do the incentives that universities provide their faculty encourage them to do good work?

In order to better understand the nature and extent of this problem, we sent 105 letters to business school deans, management science department heads, and other well-known management science academics. Within six weeks after the letters were sent, we received 42 usable responses. About 40 percent of the response came from heavily research-oriented universities, and the remainder from primarily teaching institutions. We asked

- (1) Are you personally or as a school concerned that your junior faculty can safely pursue only short-term, low-risk research?
- (2) (If yes to question 1) Have you adopted or are you considering any

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policy changes to encourage and reward longer-term, riskier research?

- (3) What changes to promotion and tenure systems, if any, would you like to see to encourage more important research?

Our letters asked for open-ended responses, and as the results below indicate, those responses ranged beyond the original questions in many cases.

The Responses

The variety and intensity of the responses to our letter indicate (a) that the issues we are addressing are of concern, and (b) that there is far from a consensus about what to do about the problem, if it exists. Everyone agrees that we want to encourage quality in our professorial ranks. Yet, are present tenure systems accomplishing that?

About a third of the respondents suggest there is no problem with the system. Some of these "no-problem" responses were provocative: for example, among those unconcerned about the problem came the following remarks:

... important research is a product of inherent brilliance and creativity of thought on the part of the researcher, and a larger quantity of important research will be related more to an increased supply of brilliant and creative researchers than to the promotion and tenure systems which comprise the environment. Since the supply of brilliant researchers is probably quite limited, I think that we should have a more realistic view of the type and quality of research that can be expected from the majority of the professoriate.

Another school handles the problems of quality by equating "quality" with publication in the top journals in this field:

... we have a policy which makes mandatory publication in journals of highest quality in

one's field; thus the emphasis is not on volume of output but quality of output . . .

Most respondents who did not acknowledge a problem were from research-oriented schools where peers were said to read publications critically and to be able to distinguish quality.

The other two-thirds of the responses were diverse. Many stated that we asked the wrong questions. Many also expressed sympathy but had little to recommend, suggesting that the status quo would be difficult to change:

The difficulty is in getting faculty who have spent 10-15 years involved in short-term, low-risk projects to change their orientation in midcareer . . . but it is very difficult to get people to change their work habits.

One of the most frequent suggestions was for more real-world emphasis. There was much diversity in the opinions about how to evaluate and address this emphasis, however:

We believe that in a school of business administration, the business community is the laboratory and that to do "good" research, the members of the faculty have to get out of the school to find out what is going on in industry. . . . Unfortunately, we are locked into a system which neither understands nor accepts our view. . . . Like it or not, we are inclined, therefore, not to recommend people who are grappling with the messy, poorly structured, ill-defined, important real problems managers face. We tend instead to recommend people who have demonstrated that they can define an area of interest, get closure on it, write about it, and persuade an editor to publish a paper.

Redesignation of promotion and tenure arrangements under consideration included emphasizing . . . user value of research activities rather than acceptability to existing journals by such means as involving user-managers in promotion and tenure review committees and arranging for outside researchers with track

records in applications-oriented work to be major participants (rather than solely reference letter writers) in promotion and tenure reviews. Evidence other than conventional journal articles should be weighted very highly in such processes.

Only hire very talented, well-trained researchers with strong interests in meaningful, theoretical issues *and* equally strong commitment to the world of actions and to being involved in one way or another in solving real problems . . . We have not promoted candidates who had 30+ refereed papers. We have said to our juniors that *quality* counts and we have supported them in taking a longer view of themselves and their work. They have responded by picking meaningful problems to work on. Several important papers have more value than a score of trite results. This attitude is shared by the best of our peers and is reflected in the outside evaluations we have seen at tenure review.

Several respondents emphasized that the cycle is a vicious one. Journals tend to publish neat, theoretical (mathematical?) exercises. Thus, tenure is equated with journal publications. Hence, mathematical/theoretical publications thrive. This view was expressed in several ways.

. . . I am concerned that the prevailing expectation is for too theoretical and very long-term (if ever) application research. I'd like to see a more balanced view. . . . Get "top journals" to publish papers with estimated intervals to application ranging from short to long. Perhaps, ask authors and referees to estimate "time to application" to heighten awareness of this issue.

. . . barriers to the pursuit of the kinds of research you champion . . . include the difficulty of access to many journals for work which is new, only partially finished, or where there are negative results . . .

That publications must play a role in a staff review exercise is unavoidable, but many journals in our field hinder rather than help the process. Understandably, we have come to rely on referees in trying to make a judgment as to

whether a paper should be published or not but good referees are very difficult to come by. Most referees are superficial, narrow-minded and bigoted. They tend to approve of their own work and maintain the status quo. This is why authors are encouraged to submit low-risk papers in order to conform. [This response is from a journal editor.]

A number of respondents pointed out that the real problem was not the one we asked about. For example:

Math is the problem . . . the principal problem is that if you have the "distinguished" figure in OR on your peer review committees, they will not fund any OR or MS or decision science research; they will only fund mathematics. Nor will the problem solvers be promoted or get tenure at the good schools.

Teaching is the purpose of the university: the hard facts are that papers can be counted, weighed, and even (subjectively) evaluated. The effects of teaching so far can only be rationally evaluated over geologic time. As usual, humanity does what it can, not what should.

Lack of money is the problem: the biggest single factor that discourages long-range, high-risk research is the lack of money. Such programs generally require big bucks and a long term commitment, neither of which is easy to get.

Several respondents suggest that poor review committees are a major part of the problem.

Our situation is aggravated by the fact that the university committee reviewing promotion and tenure consists almost entirely of liberal arts faculty who are rather unfamiliar with the type of research that is and/or should be done in management. As a result, they tend to further de-emphasize quality in favor of quantity of publications . . .

. . . in some cases the senior faculty making the evaluations for younger faculty for promotion and tenure may not be heavily involved in research themselves. Thus, it may be difficult for them to judge the significance of the research.

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Other respondents noted that encouraging and evaluating high-risk research has its own problems.

. . . a serious scholar may opt for a few higher-risk, long-term studies. . . . We do not have any program to support longer-term or higher-risk studies. The best we can do is encourage the junior faculty to develop a portfolio of work.

. . . the problem is how to evaluate for promotion and tenure the work of people who are willing to undertake risky research and devote time to securing external funds . . . it does require the development of a method of assessing what they have been doing that will provide credibility in a review by a college or university committee.

. . . academic administrators might well focus more attention on judging the ability of chairs, deans, and even faculty promotion committees, to evaluate effectively risky high-potential research. A reviewer with a good historical track record can creditably conclude that a researcher approached a problem in a sensible, creative way, even if the results were less than anticipated.

A number of individuals recommended changes. By far the most common were for extending the tenure clock to 10-12 years or for replacing tenure entirely with fixed-term contracts. For example:

Some possible changes in the tenure system to eliminate these issues might include:

- (1) Creating a two-track system — one for research excellence and one for teaching excellence;
- (2) Extending the probationary period from the current seven years to perhaps 10 or more; and
- (3) Eliminating the tenure system altogether, switching to variable term contracts. This would reduce the pressure on those making tenure decisions.

Other interesting suggestions for changes in the system included:

— Lowering the 'cost' of writing proposals:

Why not postpone the requirement that a fancy budget be submitted with the initial proposal? If the reviewers like the technical part, then ask the proposer to do a budget.

— Supporting research:

Ensure adequate research support (salary, services, and facilities) so that faculty have the time and tools to be productive. For those with distinguished records, including those at junior rank, provide such support on a guaranteed long-term basis.

— Mentoring programs:

Develop mentoring programs to ensure that senior faculty assist their younger colleagues in designing effective long-term research agendas and publication schedules.

— Developing an inventory of ideas:

It seems to me we would be much better off if we could convene some research workshops and follow-up conferences with various scholars in the field to determine inventories of ideas for research and then develop incentive systems for implementation of those agendas, so that some of the significant issues are attended to. This may, in the long run, be more productive than worrying about what the great mass of researchers do.

Observations

This inquiry is far too embryonic for us to reach conclusions. Rather, it is more fitting that we simply "observe."

Observation 1: At a few research-oriented institutions, money exists to support research, and review committees read publications thoroughly. These institutions believe they both encourage and recognize high-quality research and reward productive researchers with tenure.

Observation 2: At the majority of schools, the reward and incentive system does not seem entirely compatible with what that school would like to do: encourage quality work. The incentive system may encourage work that is too theoretical, abstract, or mathematical and may encourage researchers to publish second-rate work in second-rate journals.

Some schools feel that "professorial quality" is entirely equated with "volume of research," to the detriment of the faculty member's career, the institution, and the advancement of the field of management science.

Observation 3: Many schools realize that quality research requires time and resources; some schools are committed to creating that environment.

Observation 4: The norm for "quality" differs dramatically between schools. Some schools reward theoretical research; others encourage practical research; still others are most concerned with pedagogy. It may then behoove the faculty candidate to match his or her interests to those of the prospective employer-institution.

Conclusions

The responses to our letter suggest that a majority of business school deans and leading MS/OR academics recognize and are concerned about the "incentive gap" between academic quality and institutional incentive and reward systems. We are far from ready to supply prescriptions at this time.

The nature and depth of concern here suggests that a longer-scale, more systematic research program should address this issue. Such a program could, perhaps, provide guidance for the many institutions of higher learning seeking reward systems and tenure policies consistent with their view of "quality."

Some questions that research might address include, What effect does publishing and doing piecemeal research have on the long-term goals of MS/OR? And, if quality is an impractical criterion for judg-

ing research, what criterion or criteria should we propose for use? Should schools adapt their ambitions and goals to the resources available to them, some looking to be, in Thomas Kuhn's term, "paradigm changers" while others pursue "normal science" consistent with their more limited resources?

Indeed, we need a program of study to determine how quality research in the management sciences can be best encouraged, given the limitations and constraints of varying academic environments. But we are worried. Would researchers "get credit" for publishing on this topic?

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