

Interests and Incentives in Peer Review

**Prefatory Remarks for
the Society for Risk Analysis Forum on Peer Review
May 29, 2002
Arlington, VA**

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Some (but not all) of the complaints that have been leveled against government peer review reflect legitimate problems with its implementation by federal agencies. Others, however, actually speak to designed-in features and thus are not appropriately construed as “faults” or “errors.” Still others bemoan phenomena that are simply not reducible unless and until a race of scientists can be created whose members lack all human qualities.

In this presentation I will deconstruct government peer review not to complain or criticize it, but rather to identify those salient features that are the source of our collective misery. My analytical approach is positive (i.e., descriptive) economics rather than moral philosophy. Government peer review performs much the way one should expect it to perform given the interests of the people, institutions and issues involved. Improving its performance requires that we have fundamental clarity about three things: first, what we expect peer review to accomplish; second, whether we are all agreed that these objectives are so reasonable and appropriate that we are willing to commit ourselves ex ante to peer review as a process-based management approach; and third, whether we can design a peer review system that imparts behavioral incentives that are consistent with both objectives and this commitment to process.

IS PEER REVIEW THE RIGHT TOOL FOR THE PROBLEM?

The answer clearly depends on what we are trying to accomplish, and much disagreement about peer review arises from lacking a shared consensus on goals and objectives. Unlike many others who seek to achieve a meeting of the minds on this matter, I do not believe that true agreement is possible. The interests of parties interested in peer review are too divergent, discordant and conflicted to reach any genuine consensus. Even if all the relevant players were here at this meeting and a common written statement could be agreed upon today, consensus would begin to unravel before the first signatory left the room.

Peer review is a tool borrowed from academic and scholarly settings. For many of us, our first real introduction to “peer review” occurred during the writing and defending of our doctoral dissertations. We had committees of reviewers led by autocratic chairmen – benign autocrats, of course, if they are still alive and we want to remain on speaking terms. We chose the members of our committees and tried very hard to please and persuade them, for they held all the cards. We were not finished until our “peer reviewers” said we were.

Subsequently most of us began applying for grants and shopping our scholarly wares in front of journal editors.¹ We promised whatever grantors said they wanted and accommodated any tomfool things an editor demanded in order to get manuscripts accepted. Grantors and editors were the autocrats, but peer reviewers were anonymous and accountable only to the grantors and editors for whom they toiled. For some of us, the path to publication was eased by prior success and perhaps rewards for service as peer reviewers and on editorial boards.

The fundamental question raised by journal editors is, “Does this body of work deserve to be published given the limited number of pages available and the quality of competing manuscripts?” It is not that different from our dissertation committee’s fundamental question: “Does this thesis candidate’s work meet appropriate quality standards for our institution and program?”

At no point during that debate does scholarly peer review ask, “Is this manuscript essentially correct in all its data, methods, inferences and conclusions?” That’s a matter for Science to figure out, and Science takes its own sweet time. But this is precisely the fundamental question asked by governmental peer review. Little attention is given to whether a document ought to be published, because the reviewee-agency doesn’t need peer reviewers’ permission to publish and isn’t constrained by page limitations.

Additional problems arise to the extent that hidden objectives dominate. A reviewee-agency might care about the state of scientific knowledge or the fundamental truthfulness of the document reviewed. It also might not. It might care more about whether Science can justify what it wants to say and do. It also might be keenly interested in whether the responsibility for controversial or unpleasant policy decisions can be implicitly delegated to others, such as Scientists.

DIFFERENCES IN THE RELATIONSHIP BETWEEN REVIEWEE AND REVIEWER

In academic and scholarly settings, the reviewee is best understood as a supplicant. The thesis chairman is superior to other committee members who are superior to the

¹ I myself did not follow this track, accepting a position as staff economist in the Office of Information and Regulatory Affairs at the Office of Management and Budget. I did not apply for grants because federal regulatory agencies kept me supplied with work peer reviewing draft regulations and regulatory impact analyses. I did not seek publication of my work because the working motto there was “publish *and* perish.”

candidate. Power rests predominantly with the chairman, who along with other committee members perform functions that are part of their normal academic responsibilities. There are no deadlines. The process is private but the reviewers are known exactly. Nothing can force these people to be cooperative, complacent, speedy, encouraging, supportive or polite. Chocolate chip cookies sometimes help.

The authors of manuscripts submitted to scholarly journals face a similar (but not identical) relationship. They are still supplicants. Editors obtain peer reviewers through a variety of means, but authors do not select them and they remain anonymous.² They can (and sometimes literally do) take forever to complete a review. There are very strict deadlines that nobody pays real attention to. All power rests with editors.

Government peer review is so different it ought not be called by the same name. The reviewee-agency is not a supplicant but a client. In many cases, the reviewee-agency directly selects the peer reviewers. In other cases a firewall of uncertain temperature resistance separates the reviewee from those who formally select the reviewers. Typically, the reviewee-agency retains the authority to veto selections made by others, which is almost equivalent to enjoying the power to select. Reviewee-agencies write the charge, fund and staff the process, control the flow of information, and manage the discussion agenda if the panel chairman lacks a firm hand.

Government peer reviewers have deadlines. They are publicly known and are supposed to do their work in a fishbowl. Frequently the staff of the reviewee-agency gets an early and private peek at the peer reviewers' work. This would be considered an unethical practice in scholarly peer review.

THE DOMINANT STRUCTURAL PARADIGM FOR GOVERNMENT PEER REVIEW

In theory, government peer review is supposed to have a stack of certain attributes. It is supposed to be external to the reviewee-agency and independent from it, comprised of members who are expert in those scientific disciplines relevant to the task at hand, free of conflicts of interest that could undermine their impartiality, focused on science, transparent to public observation and scrutiny, and intellectually vigorous. A succinct version of this structure can be found in OMB's guidance to agencies on Executive Order 12866 implementation issued on September 20, 2001. Federal agencies that follow peer review processes containing these attributes are said to gain deference when their work is ultimately reviewed by my former colleagues at OMB.

External and independent. It is too early to say whether OMB actually will confer that deference, though my view is that it won't have any option. The problem is that there is a substantial discrepancy between theory and practice on the matter of whether government

² Anonymity tends to become asymmetrical as scholars become more specialized. Authorship cannot be disguised in many cases because the identity of those working on specific issues or projects is widely known. Peer reviewers can retain anonymity by writing their reviews carefully.

peer review structures actually have these attributes. “External” and “independent” are not synonyms. Only employees of the reviewee-agency are excluded from service on an “external” peer review panel. While this surely makes sense, it is not a particularly demanding requirement. “Independence” is far more difficult to achieve. Some peer reviewers are only nominally independent (or, for that matter, nominally external) because their employers depend critically on financial support, grants and contracts from the reviewee-agency. Typically, “independence” is presumed to include only a financial margin when *intellectual* independence may be much more relevant. An external peer reviewer who is fully concordant with a reviewee-agency’s policy views, for example, offers precious little true independence.

Independence is always constrained insofar as peer reviewers are explicitly or implicitly selected by the reviewee-agency, which should not be expected to aggressively search for and appoint its critics. In many instances, that is precisely what a grantor or journal editor might do to ensure that a highly controversial proposal or manuscript receives the most rigorous of reviews. Reviewee-agencies should be expected to avoid such peer reviewers to the maximum extent possible.

Less well understood is the problem associated with one-time versus repeated transactions. A peer reviewer who is professionally flattered by being selected but knows in advance that she will not be asked to serve again is more inclined to act like a juror. This probably enhances objectivity because it removes from the equation any sense that favor might be rewarded through a return engagement. Conversely, a peer reviewer who earnestly desires to return will be sorely tempted to pull his punches.

This is an ironic twist on the longstanding notion in economics that efficiency and fair dealing are enhanced by repeated transactions. These are memorialized in the adage, “The customer is always right.” Sellers strive to keep customers happy by promising to resolve problems even if these problems are fully customers’ own fault. Markets with repeat transactions can stimulate socially desirable strategic behavior. Markets dominated by one-time or rare transactions (e.g., buying a rebuilt automobile motor, hosting weddings and funerals) are the most prone to fraud and other shady dealing. That is not necessarily the case in government peer review, where strategic behavior on the part of reviewee-agencies and peer reviewers may diminish the quality of peer review. The prospect of a future relationship can motivate a peer reviewer to accommodate the reviewee-agency’s interests.

Expertise. The presence of expertise on government peer review panels is rarely a problem, but oftentimes the expertise of the members is poorly matched to the issue at hand. This may occur for any number of reasons. The “most” expert candidates may be unavailable or unwilling to serve. Those selecting the panel may not fully understand what is needed, or the panel itself may discover that it lacks expertise that it didn’t know it would need. Peer reviewers (especially economists!) may be unenthusiastic about serving for nominal pay and maximal headaches. It is still the case that you get what you pay for, so the absence of financial compensation has to be made up elsewhere – in

prestige, in repeat engagements, or perhaps in private access in the halls of the reviewee-agency.

Inadequate or poorly targeted expertise also may be the product of strategic behavior on the part of the reviewee-agency (or other party with authority to select members). A gap in expertise may be intended if the panel selector wants to skirt a particularly difficult issue. Frequently, there is but one expert in any specific and important issue on even a large panel. The absence of overlaps in expertise creates the potential for substantially diminished intellectual vigor, as members defer to each other in areas where they perceive another panelist having superior knowledge. This defect is systemic and not self-correcting: Deferring to other members also may motivate them to defer to you.

A relatively new phenomenon that threatens to severely undermine expertise (as well as several other desirable attributes) is the selection of peer reviewers because of the stakeholders they represent rather than the expertise they bring. My view is a stark one: Stakeholders belong on policy advisory committees but not on peer review panels.³ If peer review panels are slowly transformed into stakeholder groups, then science will be a sure casualty.

Conflicts of interest. Our infatuation with conflict-of-interest seems to be legalistic, misapplied and ultimately self-defeating. As constructed in law, conflict-of-interest has almost nothing to do with improper or unethical conduct (which is generally unobservable) and everything to do with appearances (which can be readily observed at any level of abstraction one might choose). Thus, a peer reviewer may be considered “conflicted” not because of anything she did or said, or because of any hint of partiality in her scientific analysis, but because she is *affiliated* with an organization that has a financial interest in the outcome.

Moreover, this tenuous definition of conflict is almost always limited to for-profit financial interests. University professors are exempt because their employers are nonprofits and their financial interests, however memorable, are laundered through their universities’ sponsored research programs. Non-educational nonprofits (such as mine) are presumptively free of conflicts because nonprofit status confers a presumption of social beneficence to which no for-profit enterprise is entitled irrespective of the relative social value of their work to mine. The unalterable fact is that almost all nonprofits (including mine) attract funds because of what we say and do, and our choice of what to say and do influences whom is interested in contributing. The only nonprofits that are free of this *conflict* of interest are the endowed foundations whose financial statements are totally unaffected by the speech and conduct of their leaders. Ironically, foundations are oftentimes bastions of extremely intense and luridly corrupting interest if their employees are permitted to serve on peer review panels.

³ This does not speak to individuals as much as it does to the relationship between an individual and the problem at hand. I consider myself an impartial peer reviewer on matters related to whether a specific benefit-cost methodology is appropriate applied in a specific risk analysis issue. However, I am a stakeholder if the question is whether benefit-cost analysis *ought* to be applied. On that margin I have a fixed and possibly unchangeably biased view.

Conventional discourse on conflict-of-interest is limited to financial matters, which in the case of scientific peer review may actually be relatively unimportant. The critical type of interest that matters in peer review is *intellectual* interest, and *conflicts of intellectual interest* are generally desirable. It is only through conflicts of intellectual interest that peer review can sort out competing viewpoints and provide practical utility to the public. A peer review panel that lacks conflicts of intellectual interest is a stultifying enterprise whose primary output is likely to be mere conformity to common dogma.

One final note on conflict of interest: Too much attention seems to be devoted to what economists call *inframarginal* concerns. For example, an expert who is employed in a scientific capacity by Giant Multinational Company can have but a trivial effect on his share of the company's success or failure through service on a government peer review panel. In contrast, an otherwise identical expert who is a Self Employed Consultant can find her firm lives or dies depending on her service as a peer reviewer. In the case of the scientist working for Giant Multinational Company, all his efforts lie below the margin because they have no detectable effect on his livelihood. In the case of Self Employed Consultant, however, virtually anything she does influences the fortunes of her firm.

THERE IS MUCH MORE THAN SCIENCE AT STAKE IN GOVERNMENT PEER REVIEW

It is a remarkably resilient conceit that government peer review is about Science. It is not. It is about policy. If it weren't about policy we wouldn't care so much. So, when agency officials say that they are just following the advice of Scientists or they really want the input of Scientists before making a controversial decision, it is okay to laugh.

Sometimes, Science illuminates alternative policy choices and makes decisions easier or less controversial. Sometimes. More often, it seems, Science is used as a means toward policy ends. The tool of peer review is abused when reviewee-agencies seek to convert policy disputes into scientific arcana. This tactic misleads the public and diminishes the reputation of scientific enterprise. It is especially disturbing to see agency officials (or Congress) abdicate their responsibility for making decisions by enlisting a peer review panel to provide scientific cover.

Scientists are (mostly) human. When invited to opine on policy matters, scientists are generally inclined to do so with the same regularity and intensity of others. When tempted to craft public policy under the guise of Science, many scientists will fall prey to the lures of self-importance and opportunity. While scientists have no special expertise in policy matters, their voices gain in relative strength when they become policy or decision makers.

Transparency. Academic and scholarly peer review – the setting from which this tool was adapted for government use – is notoriously opaque. Peer reviewers have been known to invent scientific objections to papers they simply didn't understand. In contrast, government peer review is supposed to be fully transparent. The academics and scholars who are brought in to be government peer reviewers are not at all accustomed to

conducting peer review in a fishbowl. Some handle it with equanimity; some grandstand; others withdraw into scholarly shells.

Much of the work of government peer reviewers cannot and is not done in public, of course. There is too little time; the settings are not conducive to rigorous analysis and scholarly reflection; and difficult and delicate questions that can be resolved responsibly in private may never be raised if all communications had to be public. This means government peer review is knowingly and perhaps purposefully schizophrenic. It is as transparent as law, custom or public demands require, but as opaque and mysterious as necessary.

Vigor. If vigorous effort and examination is an essential attribute of government peer review, it is rather amazing how many obstacles lay in the way. First, government peer review systems are designed to maximize collegiality and consensus. These attributes are consistent with satisfying a client reviewee-agency but they are foreign to scholarly peer review whence the peer review model came. Second, peer review tasks are often so complex that there is little or no overlap among reviewers in relevant expertise. Lack of overlap reduces effective expertise to one (or perhaps two) members on any issue. That makes a panel – even a large one – less of a panel and more a collection of individual experts. This is not a formula for vigorous intellectual discourse. Third, government peer review systems tend to provide a dominant role for the reviewee-agency. If the subject of the peer review controls panel selection, writes the charge, sets the schedule for meeting and report deadlines, staffs the panel, manages document flow, and many times actually runs the meetings, the resulting peer review cannot be expected to be vigorous.

REMEDIES

Government peer review is designed and operated to achieve conflicting goals under trying conditions with personnel who may not be properly equipped to do a job they were asked to do that might well be different its actual purpose. It's no wonder we have problems.

Identifying effective remedies depends first on reestablishing clarity of purpose for government peer review. This means drawing clear distinctions between stated and revealed objectives, and designing reforms that penalize gaps and reward transparent coincidence. The interests (whether conflicting or coincident) of all interested parties must be properly understood without euphemism or favor, because understanding these interests is essential for designing a system that has incentives which encourage the cultivation of desirable process attributes. The final step is to identify these specific process reforms and suggest how and why they would bring government peer review closer to its aspirations.

During the Forum, I will identify and elaborate on a number of specific proposals. These proposals include structural changes to overcome inherent structural flaws, and functional changes to overcome dysfunctional behavior. I will elaborate at length on the fundamental problem of conflict-of-interest – not the exhibition of actual bias and

partiality by government peer reviewers, but the unhealthy fixation on legalistic rules and perceived conflicts that capture only a small portion of real problems and tend to do so rather badly. Unless this particular problem is addressed, government peer review appears to be well on the way to becoming fatally bollixed in useless, paralyzing procedure.