tenure is perceived as increasing the willingness of professors to be whistle-blowers. The former question is of concern for the appraisal of tenure, but the latter is not. It may be interesting to know whether the desirable result of encouraging whistle-blowing is produced, but it should not be put under the rubric of encouraging independence, as the authors put it. Institutions set specific tasks for individuals (Wettersten 2006). The tasks that the institution of tenure sets for professors are those of engaging in independent teaching and research. The control of professorial behaviour poses tasks for quite different institutional arrangements – if needed: better reviews of output, clearer administrative standards and enforcement procedures, and better financial monitoring. The results of the target article indicate that professors tend to pass problems of unacceptable behaviour on to the administration, that is, to department chairpersons. This seems quite reasonable and has nothing to do with independence, as the authors indicate.

The professionalization of research has led to the application of minimal standards, which tends to hinder good research. In the nineteenth century, Charles Babbage bitterly complained that membership in the Royal Society did not depend on having made any scientific discovery: Distinguished people could simply purchase membership (Babbage 1830). But, then, membership in the Royal Society did not by itself grant intellectual status. Membership only showed an interest in natural philosophy, which is admirable. This meant that the task faced by members was to achieve status by making real contributions. However, this had an unintended and desirable consequence: Minimal contributions were of little interest, so there was real competition to make significant discoveries and reward – social recognition – for those who did.

Babbage wished prospective members to achieve status by making real contributions to science. He was quickly successful: Research became a profession, and membership in research organizations or the attainment of professorships was enough to achieve status. This, however, had an unintended and undesirable consequence: Status could be achieved by meeting the minimal standards for membership. This is the case today, especially when one is seeking tenure.

The use of minimal standards has its own logic. Minimal standards have a strong tendency to become maximum standards because any research that goes beyond them runs the danger of violating them (Wettersten 1979). Thomas Kuhn's praise of normal science is an example. Conformity with a paradigm represents a minimal standard. Any really challenging and interesting work will violate this standard and thus will probably be rejected as substandard.

Traditionally, tenure has been viewed against an idealized version of a community of scholars that requires protection from outside interference in their pursuit of truth. Admirably, the authors contribute to a more realistic picture by indicating how pressure from colleagues to conform can limit research – a phenomenon which has been studied and given a name, the Salieri-effect, by Joseph Agassi (see Agassi 1981). Just as Salieri is reputed to have blocked the career of Mozart in order to preserve his own status, senior colleagues tend to block, underestimate, and discourage junior ones who might outshine them. There are stunning exceptions, such as Planck's encouraging Einstein, and, Agassi suggests, Einstein's encouragement of Davisson and Germer, but these are apparent exceptions.

After the professionalization of research, a need arose to protect the "invisible college" – the community of scholars united only by their interest in the truth – and the tenure system was introduced to that end. This end is still a worthy and pressing goal (Agassi 2003), but more study is required to examine how professionalization has changed the internal community of scholars and how it can be made more democratic (Wettersten 1993). New teaching methods that encourage autonomy are called for (Wettersten 1987b; 1987c), and new strategies for preserving autonomy need to be developed (Wettersten 1987a). In order to correct the worse cases of punishing autonomy and to lessen the pressure to conform, institutions are called for which seek to help outsiders in trouble, whether they are young or old, accomplished researchers or beginners; institutions that will take care to avoid the Mathew effect – the rich get richer (Merton 1973) – which ruined the positive effect of well-meaning institutions such as the McArthur Fund. The misuse of minimal standards needs to be combated by encouraging those who pose new problems and set new desiderata for solutions. When autonomy is more highly valued and when more individuals are autonomous, tenure will continue to serve a modest purpose. In the meantime, we need to institute more education for autonomy.

Authors' Response

Tenure and academic freedom: Prospects and constraints

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Abstract: In our target article, we took the position that tenure conveys many important benefits but that its original justification – fostering academic freedom – is not one of them. Here we respond to various criticisms of our study as well as to proposals to remedy the current state of affairs. Undoubtedly, more research is needed to confirm and extend our findings, but the most reasonable conclusion remains the one we offered – that the original rationale for tenure is poorly served by the current system as practiced at top-ranked colleges and universities.

R1. Introduction

As Victor Nell (2006) recently remarked, "Publishing in *BBS* is not for the faint-hearted" (p. 246). It forces authors to justify their assumptions, double-check their data, and defend each claim, no matter how reasonable it seemed to them. In response to the description of our study and its findings, several commentators expressed the view that the study either was not needed because the results were predictable, or that our interpretation of the data missed the mark, or that our exposition was muddled. We discuss each of these claims in turn.

At the outset, we wish to express our gratitude to these 19 commentators for their thoughtful and thought-provoking insights. They raised a number of issues we had not anticipated, detected mistakes in our reporting of a few statistics, and posed alternative explanations that seem reasonable to us. As will be seen, we accept many, though not all, of their points. However, we stand by our conclusion that the original justification for tenure does not appear to warrant its current justification. None of the concerns raised diminish this interpretation, and in fact several of them actually amplify it, as we show below.

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To recap our principal findings, on the basis of more than 1,000 analyses, including extensive post hoc tests and logistic regressions that we alluded to but did not report (because of limitations placed on the size of the article), we repeatedly found that assistant professors rated their own cohort as less likely to insist on academic freedom and less likely to engage in strong forms of whistle-blowing than they believed associate and full professors to be. The latter two ranks also expressed the belief that assistant professors would be less likely to do these things. Further, we typically found that associate professors rated their own rank as less likely to insist on academic freedom and whistle-blowing than they believed to be true of full professors. This last finding calls into question the original justification for tenure because promotion to full professor rather than the awarding of tenure was the event that most liberated faculty from pressures to refrain from academic freedom and whistle-blowing. Notwithstanding the criticisms, challenges, and questions posed by the commentators, we stand by these conclusions, although we are the first to acknowledge that more research is needed to extend our findings and perhaps even alter them.

R2. Criticisms and concerns

R2.1. Criticism 1: The findings have little or nothing to do or say about the value of tenure

Buck, Donchin, Donderi, Jacobson, and others argue that our findings have little to say about tenure's value. In their words: "[the results] have nothing to do with the social or political value or importance of tenure" (Donderi); "questions regarding confronting sexual and research misconduct ... are not, strictly speaking, issues of academic freedom, but, rather, of professional ethics. Nowhere, to my knowledge, does AAUP (or other associations, for that matter) claim that tenure is either a guarantor or protector of ethical behavior in situations such as those described in the survey instrument"(Buck); "The target article demonstrates, at best, the existence of social pressures, but it provides no useful data reflecting on the value, or effectiveness, of tenure" (Donchin); "60% of the questions are concerned with whistle-blowing, but the issues involved in such cases make them much less relevant to the assessment of tenure than the authors suppose" (Jacobson, Abstract).

Granted, tenure has many positive aspects, such as those we mentioned in our target article, including its protection against McCarthy-type intrusions into research, its usefulness in attracting a quality workforce, and its positive effects on students attending institutions that are more tenured. In our article, we cited research by our Cornell colleague, Ron Ehrenberg (Ehrenberg & Zhang 2004), showing higher graduation rates at institutions with higher proportions of tenure-track faculty. For example, other factors held constant, a 10-percentage point increase in the percentage of part-time faculty not on tenure track is associated with a reduction in the graduation rate of 2.6 to 4.0 percentage points among students; and a 10% increase in the proportion of full-time faculty not on tenure track is associated with a reduction in the graduation rate of 4.4 percentage points. These are genuine benefits of tenure, and we acknowledged them in our article, along with several other genuine benefits. Our goal was not to gainsay these and the other very real benefits associated with tenure, but to ask whether the original justification for tenure – that it fosters academic freedom – can be currently justified. That several commentators took us to task for what they perceived to be our anti-tenure bias suggests that we unsuccessfully represented our position. We never sought to claim tenure is worthless, only that it falls short of its original justification.

Hence, in discussing our results, we argued that the value of tenure's many benefits needs to be judged in terms of its costs, such as reduced institutional flexibility, maintenance of some faculty who are not productive researchers or effective teachers, and, in light of the present findings, reduced likelihood that assistant and associate professors will exercise the academic freedom that tenure was supposed to promote, out of a seeming belief that its exercise will result in denial of tenure or promotion to full professor. Thus, our conclusion was that although we see many benefits to tenure, its original justification – fostering academic freedom – is not one of them and should not be looked to for its current justification. Clearly, this conclusion provoked strong reactions in some commentators. This is understandable given that it is a topic that many feel passionately about, and given the number of commentators who have played long-standing professional roles in organizations such as the American Association of University Professors (AAUP). However, regardless of whether anyone agrees with us on this point, we should not be accused of ignoring tenure's many demonstrated benefits.

Donchin claims that faculty willingness to teach unpopular courses and conduct research on unpopular topics has nothing to do with the value of tenure in assuring academic freedom: and that we failed to distinguish between interference with academic freedom by forces external to the academy and the internal forces that derive from interactions among scholars. In his words, "Tenure is designed to address the former ... It shelters faculty from the predilections of legislators, governors, university presidents, and boards of trustees." Because the revocation of tenure is an administrative act, Donchin argues that tenure is not meant to insulate faculty from academic politics. In response, we note that if tenure were designed solely to shelter faculty from external forces, then we would agree with Donchin's argument, as well as with **Jacobson**, who makes a similar argument (claiming that the willingness of our respondents to choose the strongest option for Question 4 was because this option did not involve internal pressure, but only external political pressure, which Jacobson argues is the heart of academic freedom). However, from its inception in the United States, tenure was conceived as a means of protecting scholars from both internal and external forces of pressure and coercion. Ever since its enshrinement in the AAUP's (1940) *Statement of Principles* (see American Association of University Professors 1940), tenure has continuously been justified on the basis that a lifetime appointment ensures that professors' pursuit of truth will be unhindered by pressures both internal and external to the academy (e.g., Byse & Joughin 1959; Fuchs 1997; Huer 1991). Indeed, in their commentary, **Greenberg & Billings** draw on thirty years of experience

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as officers of the AAUP, during which a large – if not the largest – number of tenure and academic freedom abridgements emanated not from external forces but from internal ones, such as department chairpersons who dictated what colleagues could and could not do (e.g., be absent from class to give a talk elsewhere). If tenure is supposed to insulate scholars from internal forces, then the present results indicate that it is not perceived by respondents as doing a good of job of it.

Relatedly, **Donchin** and others question whether the fact that senior colleagues are more immune to internal pressures is relevant to discussions about the value of tenure. We think it is. If a cost–benefit analysis of tenure is undertaken, then surely it is relevant that on the cost side, some undetermined number of junior colleagues find themselves muzzled by the fear of not getting tenure. We readily agree with Donchin and others that tenure may serve a valuable purpose in insulating faculty from external pressures. (We say "may" because we have no data one way or another. But it is an interesting research question that we hope will be explored.) And we also agree with **Bennich-Björkman's** belief that the American tenure system may be superior to its alternative in Sweden.

R2.2. Criticism 2: Tenure is a necessary but insufficient condition

A number of commentators expressed the view that although tenure by itself may not prod faculty to exercise academic freedom, it is nevertheless a necessary precondition for doing so (**MacDonald, Ruscio & Kelly-Woessner**). This is an appealing stance, save one inconsistency: In countries that do not have formal tenure or which have limited job security that may be terminated for whatever the institution regards as "reasonable cause," academic freedom can still be ensured by other means, such as union contracts, legislation, and so on. Thus, we agree with those who acknowledge that tenure is not sufficient to guarantee academic freedom, but we go a step further and ask whether it is even necessary. If countries without tenure, such as New Zealand, can manage to guarantee academic freedom (see **Franz & Hayne**), then what necessary role is left for tenure to play in fostering academic freedom? As noted above, we discussed in our target article other benefits of tenure, such as higher graduation rates on campuses comprising tenured faculty, the ability to attract a talented work force, and so on, and these are important benefits. However, in terms of its original justification, tenure may be neither necessary nor sufficient.

Flynn makes an important related point: Even if most academics never speak out on controversial issues, the few who have the courage to do so are protected by tenure – at least more than they would be in its absence. This strikes us as a reasonable argument, one that we find compelling, but it is also an argument that could be informed by empirical research to determine its validity. We hope that such research materializes in the future, though it deserves noting (as we mention below) that tenure has not protected some faculty from attack and job termination.

R2.3. Criticism 3: Alternative explanations of the data

Ruscio & Kelly-Woessner and **Farley** list other factors that deserve empirical study, such as whether full professors are more likely to exercise freedom because their prospects for career mobility are less (thus, they can be confrontational because no one will bad-mouth them to a search committee for a job elsewhere, as there are few jobs at their level). Although we agree in principle with these commentators, we have one niggling doubt: Why wouldn't associate professors be just as likely to exercise their academic freedom, given their limited career mobility? After all, how many job ads are there at the associate professor level? Not many – probably no more than there are for full professors. If an institution has permission to search for a tenured person, it may be more apt to go after a well-known full professor who is already a star than after an associate professor who is seen as a rising star. Our own institutions only rarely permit us to search for tenured scholars at either the associate or full professor rank, but when we are permitted to do so, we have always hired a full professor. If you check out the available job ads, we believe that you too will discover that that there are as few associate professor openings as full professor ones, and if we are correct, then Ruscio & Kelly-Woessner's proposed explanation falls short of the mark.

Donchin likens our vignettes to illegitimate demands by faculty. He states: "If I undertake to teach a course on the foundations of cognitive neuroscience, I will be derelict in my duty if I devote my lectures to a brilliant analysis of the symbolism of Hamlet." Although we agree with this analysis, it misses our point. Our survey questions had nothing to do with teaching or publishing material that was illegitimate or beyond the training of the faculty. Rather, our central finding was that junior faculty were less willing than senior faculty to exercise their right to teach and publish (and whistle-blow) about matters that were within their ken, such as publishing a controversial paper in their area or teaching a disfavored course in their discipline.

Fuller asserts that we ignored the most obvious conclusion to explain our results: "namely, that in American universities, tenure and promotion are subject to relatively strong collegial oversight for a relatively long period. The pressure to conform to local norms is thus unusually strong." He proposes shorter tenure and promotion timelines, with reviews performed at a supra-departmental level. This strikes us as an ineffective strategy for two reasons. First, most U.S. university reviews are already multi-step processes, starting at the departmental level but requiring formal additional review and approval at usually two supra-departmental levels (college and provost). So Fuller's argument seems a bit of a stretch, particularly with regard to doctoral in-house examinations. Two of us, who have completed graduate degrees in England (SJC, KMJ), are quite aware of the pressures to stay in the good graces of one's supervisors. Second, by casting our results in terms of adherence to "local norms," it shifts the discourse from what is essentially a fear of personal retribution at the hands of a wronged party (i.e., a senior colleague on whom one blows the whistle) to a claim of local community norms for silence and cover-ups that we doubt can account for all of the findings. In fact, we suspect that the prevailing norms for some

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of the question domains actually are tilted in the opposite direction to Fuller's assumption. Specifically, local norms would seem to favor whistle-blowing, publishing disfavored papers, and teaching unpopular courses. We grant that if assistant professors thought that they might lose their job by teaching an unpopular course or reporting sexual harassment by a senior colleague, they would refrain from doing so. But this runs counter to prevailing norms in the sense that when a junior colleague keeps something to herself (e.g., knowledge of sexual harassment by a senior colleague), it is not because she feels that divulging such harassment goes against local norms (it does not), but rather, because she fears that the harasser will exact a pound of flesh if he gets the chance. This does not seem to us to be a matter of "conforming to local norms."

R2.4. Criticism 4: Results are unsurprising

Several commentators expressed the view that our findings were predictable (e.g., **Fuller**, **Shermer**), and two went so far as to opine that the study was hardly needed (**Clark**, **Donchin**). On the one hand, we agree that some of our findings were unsurprising. For example, we anticipated that very few professors would fit the media depiction of the "renegade professor," and this turned out to be the case. Nor were we surprised to find that assistant professors believed their rank to be reluctant to exercise academic freedom if it meant angering senior colleagues. This, too, turned out to be the case. However, we were quite surprised by the finding that tenured associate professors were not only less likely than tenured full professors to believe their cohort would exercise academic freedom, or to whistle-blow ethical misdeeds, but also that they overpredicted full professors' ethical behaviors, just as much as full professors overpredicted theirs. We were really stunned at the magnitude of some of these effect sizes – they were huge. In short, we think that an accurate summary of the results is that they were an amalgam of predictable and unpredictable findings.

As far as whether a study was necessary to document what some felt was a highly predictable finding – that faculty at different stages of their career are differentially sensitive to the views in their community – it is our view that we benefit from empirical support for such assumptions. After all, history is littered with the carcasses of false beliefs and assumptions that at one time seemed self-evident but which turned out to be unsupported by systematic empirical research.

Finally, we wonder why, if these outcomes are so predictable and unsurprising, there is silence in the academy about junior colleagues' reluctance to exhibit the same academic freedom that full professors exercise? Surely, some degree of surprise will be engendered upon learning of these findings; the alternative is that there has been a conspiracy of silence among senior faculty. Happily for us, many commentators appeared to share our view that many of the results were surprising and "intriguing. unexpected" (e.g., **Bennich-Björkman**, **Buck**).

R2.5. Criticism 5: Sampling and methodological limitations

Buck, **Farley**, **Peters**, **MacLeod**, and others expressed concerns about sampling and methodological issues. Concerning sampling, Buck, Farley, and Peters noted that we did not sample from a list of all institutions in the country, choosing instead to sample solely from a list of the top-ranked 50 colleges and top-ranked 50 universities, and that we failed to consider that faculty from elite institutions may be less concerned about job security, thus possibly resulting in smaller effect sizes (Farley). As Buck and others noted, small colleges are far more likely to have large portions of their faculty "at will," that is, not on tenure track. Buck aptly captured our dilemma during the planning stage when she noted that almost two-thirds of faculty members are employed in institutions that do not appear on our list. Precisely. We needed faculty members who were on the tenure track to determine whether tenured associate professors were more similar to tenure track assistants or tenured full professors. We agree with Buck that it would be interesting to look at faculty employed off the tenure track as well, but it was beyond our resources to examine that contrast here. We certainly agree with MacLeod that full professors are not only tenured but are higher paid, better researchers, more productive, more likely to serve as outside consultants, and so on, all of which makes it difficult to disentangle tenure from other characteristics that could affect the results. Our covariate analyses were designed to rule out some of these attributes (years within rank, years since Ph.D. that may proxy for things like salary), but they are highly imperfect, and we readily accept MacLeod's point. Finally, MacLeod raised a cautionary note about the possibility that some full professors may have been untenured. It is possible that a very small number of full professors were untenured (we were able to check on most, but not all), but if so, then including their responses could not have altered the results. As reported, we re-ran the analyses for the six associate professors who could possibly have been untenured, and the results were unchanged.

Thus, the contrast of greatest interest to us depended on tenured and tenure-tracked faculty answering our vignettes, and such faculty are more in evidence at ranked colleges and universities than at unranked ones. If the faculty members in our sample of ranked colleges were less concerned about job security than were faculty at less elite institutions, they nevertheless exhibited weak academic freedom and whistle-blowing beliefs about their colleagues. To the degree that faculty in our sample are less concerned about job security, it would serve to underestimate the main effects we reported because untenured faculty at less elite institutions could be expected to behave even more weakly.

This was a first effort, and we could not begin to address the tremendous diversity that exists among colleges and universities (2-year, 4-year, doctoral extensive, doctoral intensive, religious, secular, private, public, different geographic regions, different national systems, etc.). There were three reasons we decided to constrain our sample to the top-ranked colleges and universities – which constraint, as **Buck** notes, is akin to excluding two-thirds of U.S. faculty.

First, both size and type of institution (small liberal arts colleges vs. large research universities) is a contrast others have identified as a fruitful source of differences in attitudes governing tenure and academic freedom. Therefore, at the start we knew that the size of the institution was an important variable we needed to examine.

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Second, during the planning stage, we became aware that many small colleges had insufficient numbers of faculty members at each rank and within each of the 18 disciplines to permit reliable sampling. The colleges that did have all 18 disciplines as well as multiple faculty members at each rank within each discipline were usually the better known, more elite schools on the list we used. Many small colleges had so few faculty members that when we tried to come up with three full professors, three associate professors, and three assistant professors in each discipline, we were thwarted. Many had departments with only two to four total full-time faculty members, thus obviating stratified sampling. In contrast, the top colleges tended to have larger faculties and many more of the disciplinary departments we studied. Hence, if we wanted to study the difference between small and large institutions, comparing professors in all three ranks, even the small colleges we selected had to be of a relatively large size among small institutions.

The third reason we studied ranked colleges is that many small, unranked colleges have little or no experience with federal grant officers on their campuses, thus making it unrealistic to ask faculty members there whether a typical colleague would report infractions to the resident grant officer. In the planning stage of this research, we discovered that many small colleges do not even have research expectations for their faculty, at least not as the term "research" is understood in Carnegie 1A institutions, and few of them have resident federal grant officers, thereby rendering our questions unfamiliar, if not irrelevant.

In the Discussion, we noted that ranked small colleges and ranked research universities can be further broken down by factors such as religious versus secular, public versus private, and even by geographical region. However, exploring these possible predictors was beyond our resources, although we agree with **Peters** and others that examining such contrasts could be very interesting. Of course, these limitations in our sample were explicitly mentioned in the target article.

In sum, the contrast between small colleges and large research universities was, as already noted, motivated by prior work showing differences. However, we could not expand on this contrast without greatly expanding the size of our sample. We assumed that if faculty willingness to engage in controversial research and express controversial opinions is abridged at these larger institutions, then it is at least as likely to be abridged at smaller ones.

R2.6. Criticism 6: Conclusions are sometimes inaccurate

Clark raised four technical points that we briefly address here: First, he argued that the likelihood of submitting unpopular research is much lower for assistant professors' judgments of their own rank ($M = 3.3$) than comparable values for associate and full professors ($M = 6.0$ and 6.3, respectively). Although we take his point, the mean he reports for assistant professors rating other assistant professors' willingness to publish unpopular research is not 3.3 but is 4.9, as can be seen in Figure 5. So assistant professors were less likely to submit unpopular research than were associate professors ($M = 6.0$) and full professors ($M = 6.3$), but the difference is not as large as Clark suggests. Second, he notes that, in section 5.3, we confuse target and respondent rank in several places. In that section we did indeed transpose the target and respondent, as Clark perceptively noted. We did not catch this transposition even though the difference is quite visible in Figure 3. In fact, it is even larger than we reported in the sentence. Thus, the suggestion that we overstated the findings because the opposite is true is unwarranted.

Third, **Clark** noted that the degrees of freedom associated with one of our tests were ambiguous. The test in question is the *F*-test for the main effect of questionnaire type in our "Questionnaire–Field–Institution–Rank Anova" for Question 1, option 2. The words "both *F*s," rather than "*F*," refers to post hoc tests for this Anova that were originally intended to be part of the manuscript but that were deleted during editing to meet the length requirements of the journal. Therefore, the *F*-test given is for the main effect of questionnaire type, as indicated by the beginning of the sentence. The thrust of Clark's point seems to be that this particular use of the *F*-test indicates that we chose to average across rank of respondent and report the main effect across all respondents rather than reporting it only for each rank of respondent for their own rank. Given that we explicitly stated we were doing this for this particular analysis (as we were reporting a main effect), this criticism does not reach very far. Similarly, the commentator states that he missed in this section an analysis of the difference between assistant professor and the two tenured ranks. We addressed this in the subsequent paragraph (see also nonoverlapping confidence intervals around means); post hoc tests indicated that the differences between full professors and assistant professors, full professors and associate professors, and associate professors and assistant professors were all significant.

Fourth, **Clark** noted that Figure 2 in section 4.2 shows that the difference between questionnaire types only holds when collapsing across rank of respondent – not when each rank only considers its own rank. However, in the section just after this, we reported the significant interaction effect between rank of respondent and type of questionnaire, which accounts for this fact. Thus, despite Clark's error detection efforts, for which we are grateful, in actuality they either amplify our claims or are not errors at all.

Clark also disagreed with our claim that untenured assistant professors and tenured associate professors believed that their cohort was less likely to insist on academic freedom than was the full professors' cohort. Although he is correct that Figures 1 and 2, illustrating data for Question 1, reveal that the likelihood of teaching a controversial course is the same for associate and full professor judgments of their ranks (Ms = 5.0 and 5.0), such results were an exception to a general trend found across many comparisons. For Questions 2, 4, and 5, assistant and associate professors rated themselves as significantly less likely to confront a senior colleague concerning misappropriation of grant money, less likely to confront a senior colleague concerning falsification of data, and less likely to engage in publishing controversial research than the full professors rated their own rank to be on these behaviors. In sum, although Clark noticed some mistakes in our figures, the general patterns of our results still hold.

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R2.7. Criticism 7: Behavioral measures are superior to opinions

Donderi, **Buck**, **Donchin**, and others asserted that a more direct measure of faculty behavior would have been preferable to the opinion data we collected – even if it meant replacing the experimental design with a less potent design. There is no reason why others cannot collect behavioral data, which could prove to be quite interesting, as **Farley** noted as well. Unlike Farley, who appreciated the data we collected while advocating for behavioral data to supplement it, Donderi chided us for allegedly conflating opinion data with fact data. By facts, Donderi means actual cases of dismissal or threatened dismissal, which he argues are the real data of interest. In contrast, he also argues that opinion data from a survey such as ours are irrelevant to the issue of tenure. Why does Donderi believe that faculty opinions are irrelevant? We would argue that opinions, or, more precisely, junior colleagues' beliefs about senior colleagues' opinions, are extremely important. Imagine a young assistant professor who has knowledge of sexual harassment by her colleague with one of his students. If the assistant professor believes that her senior colleagues will be supportive of her whistle-blowing, then she may disclose what she knows. Otherwise, she may not. This is the kind of data that Donderi argued is uninteresting. We leave readers to judge the merits of his stance.

R2.8. Criticism 8: We have a negative bias against tenure

One commentator felt we opted to "interpret benefits of tenure in a negative manner, specifically, as lower ranks being muzzled rather than as tenure liberating contentious ideas" (**Clark**). This commentator asserts that "it is unclear what outcome would have been interpreted by Ceci et al. as supporting tenure." Contrary to this assertion, we were entirely open to finding strong support for tenure's original justification: If tenured associate professors' ratings were similar to those of tenured full professors, we would have interpreted this as supporting tenure's original justification. **Buck** commented that tenure denial "is not simply a denial of a reward, as the target article suggests, but in many instances the end of an academic career." We agree, but this only serves to strengthen our argument because tenure is so desirable a reward that it can cause non-optimal behavior, including the deferral of rights and responsibilities. Ending a career certainly qualifies as the kind of institutional incentive that can cause one to abrogate rights and resist whistle-blowing. Finally, **Greenberg & Billings** argued that tenure ensures academic freedom, and in service of this assertion, they cited cases they encountered as officers of the AAUP. With the exception of the case about the professor who taught creationism, none of the examples they accused us of ignoring have anything to do with academic freedom (e.g., requiring faculty to live within 50 miles of campus). Thus, it is not clear to us what they base their endorsement of tenure upon.

R2.9. Criticism 9: Several of the questions we asked were not fair tests of academic freedom

Four commentators (**Buck**, **MacLeod**, **Jacobson**, **Wettersten**) expressed varying levels of concern about the nature of three of the questions we asked. For some, this appeared to be a minor point, but for others it emerged as a major complaint about our methodology.

First and foremost, we did not include the questions concerning whistle-blowing because of a belief that tenure has been justified on the grounds that it promotes ethical behavior, but rather, in order to examine whether tenure might undermine such behavior. We explicitly stated that the whistle-blowing questions were added to our survey to determine whether the tenure and promotion process has negative effects that extend beyond academic freedom – to instances of failing to report ethical misconduct, for example.

Jacobson's concerns about our questions were of a different nature. She remarked that "it is unfortunate that many of the authors' examples are drawn from political correctness battles . . . not cases of responsible academic research." But academic freedom is not limited to so-called responsible academic research. It is supposed to protect faculty speech and writing in all appropriate situations – not only when it is deemed by someone to be "responsible." Is Jensen's and Rushton's research on the heritability of racial differences in intelligence "responsible"? It depends on whom you ask. But academic freedom was conceived to protect them regardless of one's opinion about whether one regards it as responsible. Judgments about what is and is not responsible are at the precipice of a slippery slope. As **Lilienfeld** argues, "even research that is substantially incorrect can facilitate scientific progress by forcing researchers to rethink their cherished assumptions and adduce more compelling evidence for their assertions."

R3. Proffered remedies

A number of commentators proposed means of remedying the situation (**Shermer**, **Carmichael, Fuller**, **Wettersten**). Carmichael provides an interesting economic rationale for tenure: If senior professors are to hire younger professors who, if well-chosen, will eclipse them in research and teaching, then the senior professors must be protected with tenure or they cannot be expected to hire the best candidates. As intriguing as we find this suggestion, if the sole justification for tenure is to encourage senior faculty to hire the best young candidates, then there exist far less expensive means for doing this than providing lifetime job security. For example, senior faculty from other universities could be asked to rate the applicant pool, much the way they are called upon to act as external reviewers to rate candidates for tenure and promotion from peer institutions. Identifying the best young candidates in a peer institution's job pool would thus pose no risk to them.

Or professional societies could step up to the plate and rate new doctoral graduates along multiple teaching and research dimensions, to aid hiring decisions. **Carmichael's** analysis leads to the expectation that faculty in universities or even entire countries that once had tenure, but no longer have it (e.g., the U.K.), have been released from the fear of hiring young faculty who will eclipse them. Given how many other characteristics of such institutions would have changed with the tenure policies, it is undoubtedly very difficult to answer such a question.

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A very different proposal was made by **Shermer**, who suggested that each institution be allowed to define tenure within the parameters of its local core values. In principle, we are not opposed to such a proposal, but we wonder about the myriad complexities that might emerge from its practice. For example, some of the examples described by **Greenberg & Billings** based on their experience as officers of the AAUP (e.g., a professor being absent without leave, or a chairperson making uninvited visits to a professor's classes in the absence of student complaints) are not tied to core values, so how would the market take care of such situations? Such surveillances are not part of anyone's employment contract or of the core values Shermer has in mind, so they would have to be dealt with ad hoc. Still, Shermer makes an intriguing case for a market-based approach.

R4. Conclusion

In conclusion, the fact that senior colleagues are perceived as being more willing to resist pressures and to exercise academic freedom is pertinent to discussions of the value of tenure. If a cost–benefit analysis of tenure is undertaken, then it is relevant to include, on the cost side, some undetermined number of junior colleagues who feel muzzled by the fear of not getting tenure and promotion if they resist internal pressures.

We agree with **MacDonald**, **Flynn**, and others who point to cases in which tenure protected someone doing controversial research from dismissal. But perhaps the issue is not whether in very rare cases (like that of Christopher Brand and Frank Ellis in the U.K.) the absence of tenure renders one vulnerable to job termination, but rather, as **Farley** prefers, what the overall cost-benefit ratio associated with tenure is. That is, how much good does it do to protect the handful of researchers doing controversial research versus how much does it muzzle those who wish to possess tenure but currently do not? If we confine the discourse to rare anecdotes, then we can easily dredge up cases of professors who have been attacked for doing controversial research even though they have tenure (see Tavris [2002] for a description of the lawsuits, threats of job termination, and career disruption experienced by tenured full professors Elizabeth F. Loftus and Melvin Guyer for publishing their exposé research).

In sum, tenure conveys many benefits, but it may be neither necessary nor sufficient to justify its original rationale, that of fostering academic freedom. No comment or criticism offered by the 19 commentators has vanquished this bottom line.

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[Letters "a" and "r" appearing before authors' initials refer to target article and response, respectively.]

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